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Educational News and Editorial Comment

BREAKING DOWN FORMALISM AND STANDARDIZATION IN THE ELEMENTARY SCHOOL

In many places the work of the elementary school still suffers from the formalism of the class recitation and from a philosophy of school administration which results in too great insistence on standardized procedures and activities. In a city system where administrative authority is highly centralized and the elementary-school principal is not accorded a large measure of freedom in adapting the educational program of his school to the particular needs of the children attending, there is grave danger that the schools will come to conform to a general pattern even in those activities which most require differentiation.

According to the recently published report of the Philadelphia Public School Survey, the elementary schools of that city are too highly standardized. On this point we quote the following paragraphs from the volume of the report entitled *Summary of Findings and Recommendations.*

Typical of many of the larger city school systems in the United States, Philadelphia's program of public education on the elementary-school level is

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highly centralized in organization and control. A commendable result of this exacting line type of administrative organization is a system of elementary schools so efficiently managed that there is practically no waste in skilled classroom teaching, in pupil accounting, and in the selection, distribution, and use of instructional equipment and supplies. A less commendable result is the degree of uniformity that exists throughout the system that practically amounts to regimentation. Each elementary-school organization is as like every other in internal organization and management as it is possible for two discrete things to be similar in form and nature; each of the ten districts is administered similarly; the curricular offerings are the same and administered in the same way all over the city; instructional procedures are practically the same regardless of the widely varying nature of school neighborhoods and consequent differences in native abilities and social backgrounds of the pupils. Mass instruction, according to fairly definite patterns, prevails in all subjects on all grade and ability levels. Time allotments for course of study materials are constant for the city as a whole. . . . .

Of the three types of teaching objectives frequently mentioned in professional literature as being essential to the fullest development of children; subject matter mastery, control of one's mental activities, and control of one's emotional and social tendencies, Philadelphia teachers confine themselves largely to the first. Subject matter mastery techniques employed also rather limit outcomes to those types of learnings that can be well demonstrated in standard testing programs such as factual memorizations and proficiency in the various academic skills. Although not tested by the survey staff, this type of work is apparently well done. Mass teaching is generally practiced with but little significant provision made for individual differences of the learners. All are given the same work to do, and all recite or are involved in the same recitation at the same time. The pupils regularly do *what* they are told to do *as* they are told to do it, *when* they are told to do it. The same patterns of teaching procedures and classroom control are found all over the city.

Some of the recommendations made are as follows:

The elementary-school principal as the responsible head of his school should be freed from many of the unnecessary restrictions that now circumscribe his activities. He should be expected to adopt a program of education that provides specifically for the needs of the children of his school neighborhood however much such a program differs in particular aspects from the city-wide program for elementary schools. He should be expected, with the advice of his assistant district superintendent: (1) to make whatever curricular adaptations in city courses of study as are warranted by the pupil needs of his own district; (2) to plan any internal organization of his school that seems to him and his faculty best; (3) to use whatever classification and promotion policies his educational program demands; (4) to assume the initiative in the selection and rejection of teachers for his own faculty; (5) to assume original responsibility for the super-

vision of instruction in the various departments of his school. In brief, the elementary-school principalship should offer a career in educational leadership to worthy men and women. . . . .

Teacher and principal participation in the formulation of educational policies and in the administration of these policies should be more generally provided. Course of study making, particularly, should be a co-operative undertaking regardless of the size of the system.

The use of pupil and subject matter objectives graded as to pupil ages and school grades for each type of curriculum to direct and control the instructional activities of teachers is much superior to the use of courses of study and time roster mandates. Courses of study in any case should state the objectives to be attained and merely *suggest* appropriate content materials and instructional procedures for attaining them. Variation in the use of these materials and procedures should be encouraged providing the objectives are attained in the allotted term periods.

The philosophy underlying that type of control of learning situations known as the activity program should be generally applied throughout the elementary grades as soon as teachers can adapt themselves to it in order to eliminate the highly artificial types of pattern instruction that is now prevalent, and as a means of vitalizing learning situations (whether or not the activity program itself is used is immaterial). Adequate provision for individual differences may also be readily made within such a program.

The Relation of Educational Administration to Municipal Government in England

In this country the authority to support and to control education is usually vested in a school corporation which is a legal entity separate and distinct from the municipality proper. In some instances authority with respect to the schools is divided between the board of education and the municipal authorities, and in a relatively small number of places the city government is authorized to administer the schools along the same lines that it administers municipal functions proper. For a number of years there has been a growing sentiment among political scientists that the administration of public affairs in a given area should be consolidated in one responsible governing body. There has been in some quarters an insistent demand for the unification of school administration and municipal government within any given area. School people generally have looked on the proposal to consolidate educational and municipal administration with disfavor and, in some instances, with alarm. In view of these differences of opinion, the experience of England is

informing. England has long vested the control of education locally in its regularly constituted municipal bodies. The relation of education to the municipality in England is discussed at some length by D. S. Woods, dean of the faculty of education of the University of Manitoba, in an address published by the University in a volume entitled *A Series of Addresses Delivered during the University Extension Course on Public Administration and Finance.* The following paragraphs are quoted from Dr. Woods's address.

Education is managed locally in England and Wales by 317 county, county borough, borough and urban districts. The population in these areas varies from less than ten thousand to that of the city of London with its millions. In England and Wales these councils administer instruction and finance for approximately twenty-one thousand elementary schools, over eleven thousand of which are under denominational influence. In what we would call purely public or state schools the Board appoints a local manager or managers, and in the nonprovided or denominational schools the Board appoints one-third of the local managers. In all schools the municipal authority has control of all secular instruction.

Each local council is required by law "to refer all matters related to its education powers to an Education Committee, except the power of raising a rate or borrowing money, and must receive and consider the report of the Education Committee before exercising its powers in any such matter, except in case of urgency." The Council may not delegate its power of striking rates or borrowing money. The majority of the members of the Education Committee must be members of the Council; "co-opted members may be appointed, who should consist of persons of experience in education, or persons acquainted with the needs of the various kinds of schools in the area, and women as well as men must be included among the members of the committee." The Education Committee has tended to become an authority within an authority, but its entire policy is the decision of Council as well as co-opted members and its recommendations *re* both instruction and finance are reviewed by the Council. By this means England has brought the local administration of instruction and of finance into relation. All local services are consolidated within the Council and administered by its committees. The worth of all local services may be evaluated by the one governing body and the ability of the area to provide estimated, and rates levied accordingly by the same body. Moreover, by delegating to local managers in certain schools the control of religious instruction and to schools in general wide latitude in the choice of curriculum, they have provided for the particular wishes of minorities and for the special educational needs of different types of communities. They are not so concerned about uniformity as we are in Canada.

The National Board of Education, really a department of the national gov-

ernment, has shown a tendency to delegate its powers to the local council authority even although it pays to the councils more than 50 per cent of the total cost of education. The number of its school officers and inspectors has rapidly decreased while at the same time there has been erected an administrative and supervisory staff appointed by and under the direction of the local County Council and its Education Committee. The National Board of Education has set certain standards and has become a distributor of educational information but otherwise has left to the local governing body a large measure of freedom in determining the nature and extent of instruction and has left to the local body the right to determine school rates in accordance with its educational needs and its ability. The grants to schools by the National Board afford a large measure of financial protection to the teaching body. I attribute this attitude toward control of education, as before stated, to the confidence which the English people have that local units of government will conform to the national cultural standards and traditions at the same time as they evolve a curriculum closely related to the needs of the community.

Here and There among the Schools

Extending teacher participation in the determination of policies.—As a result of the establishment of a School Policies Council in Denver, Colorado, last November, the teachers, principals, and other employees of the school staff of that city will henceforth share to a greater extent the responsibility of framing and executing educational policies. The new council, an outgrowth of an earlier Curriculum Council, is composed of all principals, directors, and supervisors, and of teacher representatives of all the schools. It is hoped that eventually all employees of the school system will be afforded representation on the council. Superintendent A. J. Stoddard serves as chairman of all general meetings. The initial study undertaken by the new organization will be an analysis of community problems in their relation to the curriculums of the schools.

In a recent issue of *School Review*, the official publication of the Denver Public Schools, Superintendent Stoddard comments as follows on the importance of the School Policies Council:

> If school administrators are to achieve a democratic situation in education, they must not only acknowledge the large part to be played in the development of educational policy by all professional workers, but work to the end where the intellectual resources of all members of the school corps become available in the task of determining procedures.
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> A real democracy in school affairs cannot exist if both the framing of policies

and the administration of them are in the hands of administrative officers. The task of administering policies which the new commission adopts will, of course, belong to administrative officers of the school. It should be noted also that all policies are in the end subject to review and determination by the Board of Education.

In the October, 1937, issue of the *Elementary School Journal*, we commented at some length on the Atlanta, Georgia, plan for securing the co-operation of elementary-school principals in the study of fundamental policies and procedures affecting the city school system. It may be remembered that originally the plan called for sixteen committees composed of a number of elementary-school principals, each committee to study and report on some special problem, for example, the curriculum or the principal as administrator. Assistant Superintendent M. E. Coleman now informs us that during the present year the plan has been somewhat modified. This year each elementary-school principal is taking a problem which she may study alone or with the help of the teachers of her own faculty. The following problems, selected from a long list, are among those being studied: "Follow-up of Elementary Pupils in Junior and Senior High Schools," "Welfare Work:—The Problem of Relief," "Home Work," "A Program for Parent Education," "Visual Aids in Elementary Education," and "Community Councils."

Interpreting the school to the community.—There come to our desk numerous illustrations of the growing interest in the cultivation of school-community relationships. O. S. Glover, superintendent of Edina-Morningside Public Schools (post office, Minneapolis, Minnesota), has sent in a copy of a mimeographed bulletin entitled "Know Your School," which is sent from time to time to the patrons of the schools. During the present year attention will be confined to three broad fields of interest: (1) changing conceptions of education, (2) educational planning for the future, and (3) the curriculum. In the discussions of the curriculum an effort will be made to acquaint patrons with what the school seeks to accomplish at each grade level.

The co-ordination of education and the community.—The January, 1938, issue of the *Journal of Educational Sociology* is devoted to a discussion of the history and the operation of the Yonkers plan of

community organization. Bertha Smith, assistant superintendent of schools, comments as follows on the beginnings of the plan:

The Yonkers plan of community organization, consisting of a central co-ordinating council and ten affiliated neighborhood councils, grew accumulatively into its present status through a series of co-operative studies made by various groups, the results of which successively pointed to this much-needed but unanticipated consummation.

Briefly told, two groups worked simultaneously but independently; one made a sociological survey of Yonkers which culminated in the organization of neighborhood councils, the other examined the co-ordinating council plan in relation to the prevention of delinquency. These two groups met at the end of a year's respective work and pooled the fruits of their studies. A committee from both groups was selected, through the efforts of which the Yonkers Co-ordinating Council was formally organized in November, 1936.

Neighborhood councils, however, had been organized by members of the survey group during the process of the survey, the previous school year, six months before the Yonkers Co-ordinating Council was launched. These functioning units sent representatives to the central Co-ordinating Council, as did other organizations, agencies, and institutions. Under stimulation of the survey group, the organization of neighborhood councils continued; each linked itself with the Yonkers Co-ordinating Council and the plan began to shape itself.

At this writing there are ten neighborhood councils, all with representatives in the Co-ordinating Council, and several other groups in more or less embryonic stages of development. The Yonkers plan is therefore still in evolution. Future accretion depends on felt needs.

The account of the development of the plan is organized under the following divisions: (1) the sociological research on which the plan was founded, (2) neighborhood councils, (3) junior councils, (4) the Yonkers Co-ordinating Council, and (5) the co-ordination of education and the community.

Radio programs to supplement school studies in Chicago and New York.—Both Chicago and New York have adopted a plan for a more extensive use of the radio in the public schools. The *Chicago Tribune* comments as follows on the Chicago plan:

Use of educational radio programs to supplement the regular classroom work in the public schools will be inaugurated today. Prepared by the school board's radio-education council, the first of weekly bulletins recommending the programs to students will be mailed to 394 principals. A similar guide will be distributed each Tuesday until the end of the term.

The bulletin lists programs that go on the air during school hours as well as in the late afternoons and evenings, and on Saturday and Sunday. For sub-

sequent class discussion teachers are asked to suggest any programs, broadcast outside of school hours, that have some connection with regular work. At the discretion of the teacher, radios will be connected in the schoolrooms to give pupils an opportunity to listen to any programs while classes are in session, Harold W. Kent, director of the council, explained.

Principals are requested to post the bulletins in their schools so they will be available to all teachers and pupils. Each recommended program is followed by a notation of the school grade to which it applies.

The council was created last year by the Board of Education following the successful use of radio in keeping the pupils abreast of their work when an infantile-paralysis outbreak forced the closing of the public schools. Since its inception it has developed two programs, broadcast weekly, and has aided in preparation of material for a third.

A weekly program for children, under the direction of the council by teachers of kindergarten and primary grades, will begin next week. Scripts are being prepared for several series of programs that will begin next fall.

However, this is the first time the board—through the council—has utilized established educational programs to supplement the regular school work. In December the radio committee of the Illinois Department of Public Instruction began a survey of schools throughout the state in expectation of establishing a similar service for teachers in rural districts in lieu of undertaking to create special programs. A report from this committee is expected later this month.

The following statement regarding the New York plan was published in the *New York Sun*.

Convinced that educational horizons still are untouched by radio, the New York City school system is planning to embark upon an extensive program of classroom broadcasting. Starting March 1, daily broadcasts will take place. This may be increased later to two or three a day, it became known yesterday.

Not intended to take the place of the classroom teacher, the radio will be used, rather, to supplement the school curriculum. A committee is working on a plan whereby pupils throughout the city can listen to the programs at the same hour. Two sets of broadcasts are being prepared—one for the high-school and the other for the elementary-school level.

In addition, a series of ten weekly programs will deal with problems of peculiar interest to parents. The vocational-guidance department of Samuel Tilden High School is undertaking this phase of the experiment. Parents will be informed, in a personal way, of the opportunities before their children, and what the high schools are doing to meet their needs. . . . .

All broadcasting will be supervised by members of the school staff. The script is to be written by teachers but, whenever feasible, students will be invited to participate in the writing, either as an extra-curriculum project or as a classroom activity. The radio presentations will be made entirely by pupils.

Already, many boys and girls have been chosen, following competitive auditions. No dearth of candidates was found, it was said.

Teaching units in the social studies for the primary grades.—Under the general direction of Hugh S. Bonar, superindendent of schools, and Phila Humphries, director of the elementary schools, the teaching staff of the Manitowoc, Wisconsin, schools has developed a three-volume series of teaching units for the social studies in the first three grades. The first volume, entitled "The Home," deals with the immediate environment of the first-grade child. The second volume is also confined to the local community, but it stresses the interdependence of the people within the community. The third volume, "The Greater World Community," develops the theme of the interdependence of the child's city and other communities. Some of the units are presented in a complete form, showing objectives, procedure, materials used, child participation, and results. The five units of the third volume are: (1) "What Manitowoc Gives to the Greater World Community," (2) "What the Greater World Gives to Manitowoc," (3) "The Relationship of Transportation to Our Interdependence within the Greater World Community," (4) "The Relationship of Communication to Our Interdependence within the Greater World Community," and (5) "Manitowoc Then and Now—A Summary Unit Tracing the Development of Manitowoc from the Beginning."

Planning administrative and supervisory policies and procedures in advance.—From Charles J. Dalthorp, superintendent of schools, Aberdeen, South Dakota, we have received a mimeographed bulletin entitled "Supervisory and Administrative Programs of the Principals and Supervisors of the Aberdeen Public Schools." Superintendent Dalthorp finds that a yearly program set forth in writing helps to crystallize objectives and to stimulate determination for achievement. The distribution of the programs to all the teachers in the school system also serves the purpose of familiarizing them with the plans for achievement in the system as a whole. In the bulletin for 1937–38 the supervisor of health and the principal of each school in the system describe in detail the objectives of their administrative and supervisory programs and indicate the procedures to be employed in carrying the programs into effect.

A Guide to the Literature on Diagnosis and Teaching of Reading

Teachers at all levels—elementary, secondary, and college—who are interested in the findings of research with respect to the diagnosis and the teaching of reading will welcome the appearance of a recent bulletin published by the Educational Records Bureau, 437 West Fifty-ninth Street, New York City. The bulletin was prepared by Arthur E. Traxler and is published under the title "Summary and Selected Bibliography of Research Relating to the Diagnosis and Teaching of Reading, 1930–1937." About twenty pages are devoted to a summary of reading studies, and about sixty pages are devoted to an annotated bibliography of 283 titles. Among the topics discussed in the summary of findings are the following: "Reading readiness," "Reading interests," "Reading in the content subjects," "Vocabulary studies," "Reading tests and testing procedures," "Speed of reading" and "Activity programs and reading achievement." The following statement quoted from the Introduction gives a fairly adequate idea of the general purpose and scope of the bulletin.

> This booklet has been prepared to present a summary and selected bibliography of the recent research literature that may be of particular interest to teachers of reading in elementary and secondary schools and colleges. A special attempt has been made to include significant studies dealing with the causes of reading disability, the diagnosis of reading difficulties, and the remedial and corrective teaching of reading. Theoretical discussions of the teaching of reading, however excellent, have been excluded from the bibliography, except when they have emanated from a background of research data.
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> The main purpose of the booklet is to make available to administrators and teachers interested in conducting programs of either remedial or developmental reading a convenient source of reference for diagnostic techniques and teaching procedures that have been tried out and evaluated. However, certain related studies have been included, since it is obvious that a background of information about such topics as reading readiness, reading interests, and reading in relation to the content subjects is essential to the intelligent planning and successful carrying-out of a program of diagnosis and instruction.
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> In preparing this seven-year summary, frequent use has been made of the much more complete annual summaries of reading investigations prepared by Dr. W. S. Gray. Persons interested in going beyond the present selective summary will do well to consult the Gray summaries in the *Elementary School Journal* up to and including 1932 and in the *Journal of Educational Research* since 1932.

Two New Magazines

Teachers and parents will welcome the appearance of a new magazine designed to provide children with wholesome, interesting, and inspiring reading. The new magazine appeared in January of this year and bears the title *World Horizons*. The editor is Joseph B. Egan. On the editorial board are a number of well-known educators: among others, Fred C. Smith, academic dean of the University of Tennessee; Grace E. Hackett, supervisor, Boston Public Schools; Garry Cleveland Myers, lecturer and author; David Morton, professor of English, Amherst College; and Everett L. Getchell, professor of English, Boston University. Every month the journal will be built around some fundamental idea, for example, "Opportunities Ahead," "Man's Gift to Man," and "Treasures within Reach." In addition to fiction, biography, and poetry, there are articles which fall within the classification of sociology, nature-study, folklore, photography, art, science, and vocational guidance. *World Horizons* is published at 23 Central Street, Wellesley, Massachusetts, and the subscription price is $3.50 a year.

The second magazine is of a very different kind. Carrying the title *Psychiatry: Journal of the Biology and the Pathology of Interpersonal Relations*, it will present "authoritative but relatively nontechnical treatises, reports, surveys, reviews, and abstracts." The journal will be published quarterly, at 1835 Eye Street, N.W., Washington, D.C. After January 31, 1938, the subscription price will be $6.00 a year.

New Facilities for Educational Broadcasting in the United States

The Federal Communications Commission announced recently that twenty-five channels in the ultra-high frequency band have been reserved for nonprofit educational broadcasting. It is contemplated that nonprofit educational agencies will use broadcast stations "for the purpose of transmitting educational programs directed to specific schools in the system for use in connection with the regular courses, as well as for routine and administrative material pertaining to the school system." Programs of an educational nature will be broadcast to classes in schools and to the general public. All programs must be educational or recreational in character. No

broadcasts of a sponsored or a commercial character will be permitted.

John W. Studebaker, United States Commissioner of Education, sees in the new arrangement great possibilities for the development of education in this country and for progress in our national life. In a recent release of the United States Office of Education, he comments as follows on the announcement of policy of the Communications Commission:

I am pleased to learn that the Federal Communications Commission has set aside a definite portion of this important national resource exclusively for educational purposes. The reservation of twenty-five channels means that a large number of allocations can be made to educational groups throughout the United States. Engineers point out that a minimum of about fifty stations in various parts of the country may use each frequency, since the ultra-high radio waves are distinctly local in character. This indicates that there is room in the sector reserved for at least 1,250 local, nonprofit, educational radio-broadcasting stations.

Opportunity to use these channels presents a great challenge to American education, but I am confident that education can rise to the opportunity to use these facilities which should affect the scope and progress of education and our national life with results just as revolutionary as those which followed the invention of the printing press. . . . .

Many will wonder what significance this new allocation of the F.C.C. holds for school organizations. It is difficult to answer this question because it is almost impossible to imagine the variety of uses to which the nonprofit educational stations may be put. They will be used to stimulate the interest of students in subjects they would not ordinarily be eager to learn. This is being done at present, to a limited degree, in some cities over commercial stations. Detroit is engaging in such broadcasts. There will be broadcasts to classrooms as there now are to science classes in Rochester. Model lessons broadcast by especially expert teachers in various subjects will gradually improve classroom teaching. Cleveland is one city now following this practice. The University of Wisconsin's radio classes in singing doubtless will be duplicated in many other areas. Emergency use of radio for educational purposes is an important consideration. Chicago and Long Beach have made emergency use of radio to reach pupils in their homes when schools were closed.

These frequencies can be a great boon to the isolated rural school with its one or two teachers. At present county superintendents or supervisors may be able to visit each school in the county or district only once or twice a year. Establishment of a radio station in conjunction with a county school system would enable the superintendent or supervisor to be in constant touch with all schools. The rural-school curriculum could be vastly enriched through the proper development and use of education by radio.

The Federal Communications Commission's announcement points out that these local, nonprofit, educational stations will be authorized to transmit educational and entertainment programs to the general public in every city and town maintaining such a station. With this broad charter it is not impossible to anticipate not only a major step forward in the education of children but also programs for educating adults greatly extended beyond anything now existing. I can see that various types of programs involving many discussions of civic and social problems of interest to the general public which require more time than can be fitted into present-day radio schedules, may be broadcast successfully over these educational stations at times during the day when it is most convenient for people to listen.

Mr. Studebaker also stated that the United States Office of Education would begin immediately to collect the information that educational organizations will need in order to make application for these frequencies. The Office will also supply advice on such matters as equipment, personnel, and programming.

A Guide to the Purchase, Preparation, and Use of Instructional Materials

Teachers, principals, and superintendents throughout the country will be interested in a mimeographed volume recently published by the State Curriculum Laboratory at the University of New Mexico. The volume bears the title "Materials of Instruction: Manual and Buying Guide." That the term "materials of instruction" is broadly conceived is evident from the following statement of Marie M. Hughes, director of the State Curriculum Laboratory, which is quoted from the Introduction.

"Materials of instruction" include all the tangible items which are a part of, or contribute to, the experiences which the child has under guidance of the school. The magnitude of the topic, materials of instruction, may now be clearly perceived. It includes the school building and grounds; the furnishings and equipment; all books, maps, paper, study sheets, practice exercises, tests, et cetera, which are utilized; also, it includes the flowers, the grasses, the vegetables, pieces of rock, small and large creatures the children may bring to school; moreover, it includes all those things which the teacher and children use, see, feel, and talk about when they go outside the four walls of the school; too, it includes the talks and information which the people of the community give the children.

Throughout the volume it is recognized that the program which the school is attempting to carry out will largely condition the instructional materials required. The first chapter presents a vivid

picture of the great variety of functional activities now found in the better schools of the country. A second chapter is devoted to problems pertaining to the selection, purchase, care, and distribution of materials of instruction. The next two chapters consider the production and the refinement of locally prepared materials, one chapter being devoted to the teacher's laboratory and the other to teacher-prepared materials. The final chapter is entitled "Classified List of Equipment and Supplies: A Manual and Buying Guide."

The volume is much more than a mere guide to the purchase and the preparation of instructional materials. Throughout, the authors have been aware that purpose and method cannot be divorced from the instructional materials employed. In a way, the volume is a practical treatise on methods as well as on materials.

Who's Who in This Issue

William A. Brownell, professor of educational psychology at Duke University. H. A. Gray, associate director of field studies of Erpi Picture Consultants, Incorporated, New York City. James A. Fitzgerald, professor of education at Loyola University. Richard A. Barnes, dean of Olivet College, Olivet, Michigan. Florence L. Goodenough, research professor of the Institute of Child Welfare, University of Minnesota.

A CRITIQUE OF THE COMMITTEE OF SEVEN'S INVESTIGATIONS ON THE GRADE PLACEMENT OF ARITHMETIC TOPICS

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The person who challenges "reforms" now being made in arithmetic instruction in the name of "readiness" invites unhappy consequences. He may be accused of bias arising from vested interests. He may be charged with being a traditionalist, an educational reactionary. He may be condemned for inhumanity toward children and even for ignorance of child psychology. Nevertheless, it is high time, I think, to examine critically the research basis claimed for the "reforms" to which allusion has been made.

By now there is a rather respectable body of research literature on various phases of arithmetic "readiness." No other single research study or group of studies has, however, attracted the attention which has been accorded the reports of the Committee of Seven. This committee of seven members of the Superintendents' and Principals' Association of Northern Illinois first published its recommendations in 1930 in the Twenty-ninth Yearbook of the National Society for the Study of Education (10) and has since published them or discussed them in at least ten other places. Its work has unquestionably affected practice widely but, I fear, not always wisely.

PROCEDURE IN THE COMMITTEE OF SEVEN'S INVESTIGATIONS

The general experimental procedure employed by the Committee of Seven is so familiar[1] that I shall describe it but briefly here. By means of questionnaires the committee first determined the usual grade placement of an arithmetic topic, such, for example, as the division of fractions. Next, it made arrangements with co-operating schools to teach each topic in a series of grades: in the usual grade and in one or two grades immediately preceding and following the

[1] For fuller accounts see the references numbered 3, 5, or 10, among others, at the end of this article.

usual grade. The committee then supplied each co-operating school with definite directions as to time allotment, instructional materials and methods, tests, and the like. At the start, intelligence tests and arithmetic-foundations tests were administered to all pupils—intelligence tests for the purpose of securing mental-age ratings and foundations tests for the purpose of measuring mastery of the skills deemed essential to the learning of the new topic. Instruction then followed over a specified period of time. Final evaluations were made in terms of scores on retention tests given some weeks after the conclusion of teaching.

The committee's findings were then translated into mental-age standards. That mental age was chosen at which at least three-fourths of the children could show 80 per cent mastery as revealed on the retention tests. Thus, it was decided, the fifty easier subtraction facts may be taught at the mental age of six years and seven months, but multiplication and division of fractions should not be taught before the mental age of twelve years and three months.

I know of but few competent workers in the field of arithmetic who accept the Committee of Seven's proposals for mental-age (or grade) placement. In spite of this fact, criticisms have been slow to appear in print. The most noteworthy exception to this statement is the series of interchanges between Raths (**6**) and Washburne (**14**), the committee chairman, which enlivened the *Educational Research Bulletin* in the year 1932. Yet there have been criticisms, and these criticisms have come to the ears of the committee.

LIMITATIONS ADMITTED BY THE COMMITTEE OF SEVEN

The *Journal of Educational Research* for May, 1936, carries the last of the articles by Washburne, in which he discusses the experimental "limitations" of the committee's studies. These admitted weaknesses I should like to list here, as nearly as possible in the words of the article (**17**: 698–99).

1. The committee's proposals should have been tested by repeating the experiments. Check investigations being impracticable for financial reasons, the recommendations can be regarded as only tentative.

2. The findings had to be reported in cruder units than are desirable, since lack of funds precluded the making of the "minute detailed analyses" which the committee would have liked to undertake.

3. The committee "necessarily had to dictate for each topic a specific method of teaching and specific materials. . . . . Whether improvement in the method would change the mental-maturity placement is, of course, purely hypothetical."

4. The committee does not undertake to say "what the effect would be of changing the time allotment for teaching."

5. "The standard of 80 per cent retention by three-fourths of the class . . . . was of course purely arbitrary." A higher standard would have raised, and a lower standard would have depressed, the mental-age requirement for each topic.

6. The "foundations tests as prepared by the committee are inadequate" since they lacked "elements that would show whether or not the child had a real concept of the meaning of the process that he was going to undertake."

7. "The tests in the process taught" were "not always sufficiently complete."

Seven experimental limitations are, then, conceded by the committee, or at least by its chairman; and seven weaknesses would seem to be enough to cast doubt on the worth of any conclusions that can be drawn from the committee's experimental data. One is hardly prepared, therefore, for the following sentence which occurs less than two pages later: "Is it not always better to act on the basis of even tentative scientific results than on the basis of a tradition which has always been unsatisfactory and which has resulted in many school failures?" (17: 701.) Thus, in the same article the committee recognizes the experimental limitations of its work and calls for a more general adoption of its recommendations. The only way, apparently, to reconcile this inconsistency is to assume that the experimental limitations are of little consequence. There is space here to consider but two of these limitations, the first having to do with the factor of instruction, the second with the factor of measurement.

CRITICISM I. THE INFLUENCE OF THE INSTRUCTIONAL PROGRAM

As has been previously stated, the committee dictated the kind of instructional program to be followed with each topic in each cooperating center. The committee grants that different methods of teaching and different materials *might* have led to different mental-age standards, but it regards this possibility, to use the words of the chairman, as "purely hypothetical." Such a grudging acknowledgment might have been justified in 1930, at the time of the first report, although even then the relation between instruction and suc-

cess in learning was known to be close. Be that as it may, in 1936, even in 1932, the question was no longer "purely hypothetical," the last element of uncertainty having been removed by the announcement of Beall's careful study on the teaching of long division (1).

In Beall's study every attempt was made to select helpful teaching procedures, to control the steps of presentation, to motivate learning, and to correct errors in understanding and in computation as soon as they appeared. Long division was introduced, not in the second term of Grade IV as has been the practice traditionally, but in the *first* term of Grade IV. Beall's subjects were thus several months younger than pupils usually are when they encounter this process, and they were correspondingly handicapped in general experience and in arithmetical training. Nevertheless, these beginning fourth-grade pupils demonstrated conclusively their ability to learn this new process more than two full years before the Committee of Seven's mental-age standard for the process.

More recently Grossnickle (4) has published his study on the teaching of long division. Grossnickle found that his pupils, like Beall's, could learn long division at the mental age of ten years and three months,[1] without waiting until they had attained the committee's standard of twelve years and seven months.[2]

These studies, which clearly reveal the dependence of mental-age and grade standards on instruction, justify caution concerning all the committee's recommendations. It is futile to argue that we must adopt the committee's standards merely because we do not know *how much* difference instruction makes in the case of each topic. We have experimental evidence that the difference *may* be as much as two full grades, and this amount of difference may conceivably be the rule rather than the exception.

[1] The Grossnickle investigation did not use the divisors 13–18, the "demon divisors," but it introduced all other difficulties in the process. On the other hand, neither did the Committee of Seven's retention test contain examples with divisors between 13 and 18.

[2] These studies show that long division *can* be taught in Grade IV. They do not prove that long division *must* be taught or *should* be taught in that grade. There may be reasons, apart from readiness, which make Grade V preferable to Grade IV for the teaching of this process. As a matter of fact, it is my belief that Grade V is the place for this topic.

In conclusion, then, we need not deny validity to the Committee of Seven's mental-age standards *for the instructional program which it employed*, but we should be careful always to add this limiting clause. At most, the committee's standards will surely apply only in schools which follow *exactly* its instructional materials; deviations from this program make doubtful the validity of the standards. In this connection two facts should be noted. The first is that the possibilities of important instructional deviations are almost infinite. Changes in the order of teaching the sub-skills, in the quality of previous preparation, in the length of the daily period, in the effectiveness of the motivation, in the number of days allotted the topic, in the thoroughness of diagnosis and remedial instruction—changes in any of these details may be enough to invalidate the committee's findings. The second fact to be noted is that in none of its ten or more articles has the committee given any information about its instructional program for the topics investigated. How, then, is a given school system to know how closely its instructional program parallels that of the committee? How, then, is it to know whether it can properly adopt any of the committee's standards?

CRITICISM II. WEAKNESSES IN THE MEASUREMENT PROGRAM

I shall try to establish three points about the committee's measurement program which again call into question the soundness of its experimentation and hence the soundness of its conclusions. These three points relate to (1) the difficulty of the tests, (2) the method of scoring the tests, and (3) the interpretation given the test scores.

1. *Undue difficulty of the tests.*—The strategic importance of the retention tests in the committee's investigations should be clear: topics were placed at the mental age when three-fourths of the pupils first attained 80 per cent mastery. From this rule it follows that the harder the tests, the more mature the children would have to be before they could qualify as "ready" and the later in the school course the topic in question would be placed.

The one test published by the committee is that in the process of subtraction (10: 650). This test consists of eight examples. Only one example has two-place numbers in both minuend and subtrahend; only two examples can be solved without borrowing; half of

the examples have zero in either tens' or ones' place in the minuend; and five of the eight examples require borrowing twice. The general picture is that of a test which is excessively weighted with hard items.

The same impression is gained from an examination of certain of the unpublished tests, which are generously made available upon application to the committee. The test in long division comprises seventeen examples, all with two-figure divisors but with quotients which vary from one to three figures. In eleven of the seventeen examples the divisors end in the figures 6 to 9, the difficulty of the test being thus greatly increased. Its difficulty is still further enhanced by a time limit of fifteen minutes. In such a brief period of work no checking was possible, and the strain of the time pressure must certainly have encouraged confusion and chance errors.

The tests on operations with decimals[1] are equally open to criticism, both because they are too difficult and because they involve examples of a highly artificial character. It is, then, in these tests themselves that one explanation is found for the committee's postponement of addition and subtraction of decimals to the mental age of twelve years and six months, and of multiplication and division of decimals until the mental age of fourteen years and ten months.

The first charge to be made against the committee's measurement program is, then, that its tests predetermined excessively high mental-age standards. Other tests would certainly have led to different results and to different grade placement. Tests better adapted to their function would, I think, have been easier and would have had more liberal time allowances. Such tests in all probability would have yielded mental-age standards much closer to those of traditional practice.

2. *Over-strict methods of scoring.*—The second charge against the measurement program arises from the method of scoring the tests. The procedure was to give credit only for correct answers. While

[1] The test on addition and subtraction of decimals is made up of twenty examples, to be solved in twenty minutes. Example 6 calls for the addition of .47, 734, .13, and .005. Three of the other addition examples also involve ragged decimals of unusual types. Example 14 requires that 8.444 be taken from 14. Of the eight examples in subtraction, four employ ragged decimals. The last three examples are of the type: 14.08+9.5+7.398−6.007.

this procedure probably introduced no errors in the tests on the number facts, with equal probability it did introduce errors in the case of the more complicated processes, such as long division and operations with decimals and fractions.

The objection raised to the committee's scoring procedure is no quibble, nor is it based on mere conjecture. Although in the nature of things the extent of the effect of the method of scoring cannot be reported here in exact terms, the probability of large influence can be illustrated. Consider as a concrete case the one example $.5 \times .1057$. All of a pupil's work on this example could be correct save for a single slip on a multiplication fact. This one error, properly chargeable against ignorance of the multiplication facts, would nevertheless be chalked up against multiplication with decimals, with obvious consequences to the test score and ultimately to the mental-age standard for the process. The point of the illustration is that, had the scoring allowed credit for understanding of processes (the crucial element), instead of for correct answers alone, the committee's high mental-age standards would almost certainly have been lowered.

3. *Ambiguous meaning of test scores.*—The third objection to the committee's measurement program relates to the interpretation of test scores. Let me illustrate from the subtraction test. The easiest example in this test is $49 - 46$, and perhaps the hardest is $508 - 199$. It is not unusual to teach the first of these examples in Grade II and the second late in Grade III. In other words, a full year commonly elapses between the teaching of the two examples at the extremes of difficulty in this test.

Just what does a pupil's score on this test mean? It can represent little more than his general achievement on a year's work in the subtraction of whole numbers. This information, however, is not the kind which we need for the accurate placement of topics. We do not, according to our present imperfect plan, locate at any one point in the grades a total process like the subtraction of whole numbers, or even as large a segment of a process as that lying between $49 - 46$ and $508 - 199$. Instead, we divide up the process and teach part at a time, and the tendency now is to spread the teaching of topics still more widely than has been the practice in the past.

I am well aware that the Committee of Seven has recognized the possibility of spreading instruction on topics. Here, for example, is a quotation from the 1936 article: ". . . . the statement that a topic must not be taught below a given level never means that certain easy aspects of it may not be introduced at a lower level" (17: 703). Here is another statement, made as early as 1931: "As teachers have always realized, the easier elements of some topics can be learned successfully at an earlier age than the more difficult elements" (3: 200).

Two points should be made about these statements. The first point is that the committee's tests, instead of helping us to detect the easier elements of processes, actually tend to obscure such differences in difficulty. The second point is that, by reporting the placement of topics as wholes (with few exceptions), the committee has encouraged the concentration rather than the stretching-out of instruction. The committee acquiesces in the earlier teaching of easy aspects of topics, it is true. Nevertheless, the teacher and the principal who over and over again read in the committee's articles the assertion that children cannot learn this or that topic before such and such a mental age are not in the mood for piecemeal adoption. Rather, they act on the all-or-none principle. They place the addition and the subtraction of decimals at ten years and eleven months, long division in Grade V or in Grade VI, and so on.

In summary.—The committee's measurement program is open to three serious objections: (1) The tests inevitably yielded high mental-age standards because they were unduly hard. (2) The method of scoring, which allowed credit only for completely correct answers, also had the effect of raising the mental-age standards. (3) The composition of the tests and the treatment of the test scores has reanimated the discredited practice of organizing the curriculum strictly according to topics.

NEED OF SCRUTINY OF OTHER EXPERIMENTAL FACTORS

With this I conclude my discussion of the Committee of Seven's experimentation as such. Technical factors other than the two I have considered (instruction and measurement) should in the future receive critical attention, namely, such experimental factors as

time allotment, number of subjects used, and the quality of the foundations tests and of previous training. I leave these matters of experimental technique in favor of two other major criticisms. These last two criticisms bear, first, on the committee's conception of maturation and, second, on the effect of its proposals on instructional practice and on future research in arithmetic.

CRITICISM III. THE COMMITTEE'S VIEW OF MATURATION

1. *Various conceptions entertained by the committee.*—I have said that I intend to criticize the committee's conception of maturation. As a matter of fact, the committee entertains, not one, but three conceptions of maturation.

The first conception is implied in the following quotation, which can be matched from several other articles: "In general the results indicate that there is a stage of mental growth for each topic in arithmetic before which it is wasteful of time and energy to attempt to teach it, and a stage beyond which there is little to be gained by further postponement" (**5**: 20). Here maturation is thought of as some kind of inner ripening—a form of growth which is quite unaffected by experience. The ability to multiply fractions, for example, is a special function which matures by reason of internal compulsion. There is little that can be done to influence the rate of its growth, for such a function is not susceptible to external influences. We can but wait until it has reached the required stage of development. This conception of maturation may be called the "inner-growth conception."

The second conception of maturation is implied by the committee's practice of stating standards in terms of mental age. When the committee asserts that the addition of decimals cannot economically be taught before the mental age of twelve years and six months, it says, in effect, that arithmetical maturation is a condition of *general* intellectual development. The child can learn to add decimals when he has attained a mental status of twelve years and six months. Less mental maturity materially limits the success of any attempt to teach the process. In some way general intelligence is the essential element to successful learning in arithmetic. Let us call this conception of maturation the "M.A. conception."

The third conception of maturation is illustrated by the following quotation: "This graph makes it evident that it is extremely inefficient to teach children to add and subtract fractions before they thoroughly understand what fractions mean" (**13**: 218). Here emphasis is laid on the importance of previous learning. Readiness to master a new arithmetic topic is seen to be the product of particular kinds of experience, namely, arithmetical experiences. This third conception, which may be denoted the "experience conception," is much more evident in recent than in early articles by the committee (for example, Item **16**).

Here, then, are three conceptions of maturation: (1) the "inner-growth conception," (2) the "M.A. conception," and (3) the "experience conception." Maturation can hardly be all these things. Which is it?

2. *Criticism of conceptions.*—I know of no justification whatever for the "inner-growth conception." We have come well away from this conception as it was formerly applied to instincts and later to general scholastic aptitudes, such as mathematics and spelling. Now, apparently, the doctrine has returned in even more extreme form. Once more teachers are to "strike when the iron is hot," but this time the "iron" is made up of highly specialized arithmetical ideas and skills. In the light of modern psychology such a hypothesis is wholly untenable.

The "M.A. conception" is likewise, I think, quite without adequate support. Nobody does, or can, deny the close relation between mental maturity and success in learning arithmetic, but this is far from saying that mental maturity, in and of itself, conditions success in arithmetic. To illustrate my point: we can conceive of a boy with a mental age of twelve years who had never even heard of arithmetic. His general intellectual development would, of course, be of great service to him in learning arithmetic if arithmetic were presented to him at this time, but it would be no substitute for instruction; he could learn arithmetic only by engaging in the appropriate kind of arithmetical activities. Similarly, under conditions of school instruction, mental maturity facilitates learning in arithmetic by enabling the pupil to profit from instruction.

According to the third conception of maturation, arithmetical

development is viewed as the product of arithmetic experiences. This conception, it seems to me, is sound. A child is "ready" to learn a new arithmetic topic when he has control of all ideas and skills prerequisite thereto. Incidentally—but only incidentally—he will also probably have attained a general maturity which will make learning easier. The main thing, however, is that his previous arithmetic experiences will have brought him to the stage where he can now take on the new learning.

The third conception of maturation is exceedingly helpful in thinking about grade placement. It serves to emphasize the essential continuity of learning; it leaves room for instructional influences in effecting readiness for learning; and it provides a sure and sensible basis for ordering our teaching. According to this conception we shall place an arithmetic topic, not arbitrarily in this grade or at that mental age, but wherever children can learn it economically. In all probability there is not a *single* mental age or a *single* school grade at which a topic *must* be taught, but there are *several* at which it *may* be taught. Once we are sure that children have had the necessary foundational experiences (and this fact can be ascertained through appropriate tests), we can teach that topic, whether it be at the mental age of ten years or at the mental age of nine or eleven, whether in Grade V or in Grade IV or VI. The placement of a topic will vary with the system of presentation—in other words, with the way in which learning is organized.

If this third conception of maturation, the "experience conception," is correct, then there is every reason to object to the one invariable set of mental-age standards proposed by the Committee of Seven.

CRITICISM IV. EFFECT OF THE COMMITTEE'S WORK ON FUTURE TEACHING AND RESEARCH

My fourth criticism, like the third, relates less to the Committee of Seven's experimentation than it does to the effects of its work, particularly on arithmetic instruction and on research in the teaching of arithmetic.

In the practical business of arithmetic instruction, changing the place of arithmetic topics has withdrawn interest from more funda-

mental issues. However we may deprecate the fact, it is understandable that teachers and principals should hope that, by moving topics about (chiefly upward), they will realize large economies and perhaps remedy most of the arithmetical ills in their schools. Here again the Committee of Seven has recognized the danger and issued a warning, but the warning is lost in the midst of arguments for the adoption of its mental-age standards.

Other workers in the field of arithmetic must have had my experience. During the past four or five years I have received many letters the contents of which may be summed up somewhat as follows: "In our schools we have adopted the Committee of Seven's placement of topics; what should we do next?" Such letters come to me too late. I wish that they might have been written *before* the new standards were adopted. Then I might have replied:

> First of all, study the problems of your instruction. Find out precisely where difficulties are arising and why they arise at these points. Vary your instruction; supplement the textbook presentation; devise new materials; insert new steps if necessary, or eliminate useless steps; and then teach again. When you are convinced that nothing else will relieve the situation, change the grade placement of topics, but only as a last resort. Moving topics upward is an easy way out, but it may be nothing more than a retreat from your problem. At best it is but a superficial solution, and in the end it may raise more problems than it solves. If you do move topics, however, be prepared continuously to scrutinize your instruction and to make all the adjustments that the changes may require.

So far as research is concerned, the danger is no less real that our interest in grade placement may divert us from matters of larger moment. What we need everlastingly to investigate is how to teach arithmetic better. Perhaps we *are* introducing topics too soon—before we have created readiness through appropriate experiences. Postponement of topics is one solution, but only one. Greater advances may be made by improving the learning activities which precede the study of each topic where it now stands. The gains that have followed effort of this kind in the case of primary number certainly justify the hope of corresponding gains at higher levels.

SUMMARY AND FINAL WORD

I have criticized the experimentation and the proposals of the Committee of Seven on four grounds. I have stated that its mental-

age standards are of doubtful validity for two reasons: (1) These standards can properly apply only in schools which employ the committee's methods and materials of instruction, and we do not know what these are. (2) The standards are almost certainly too high because of the committee's methods of measurement. I have also expressed two fears concerning the consequences of the committee's work. The first is that it will foster faulty views of maturation; the second, that it will deflect interest from more fundamental problems.

Changes in the time of teaching arithmetic topics and parts of topics are inevitable. In fact, these changes are now being made. The changes, however, which will stand the test of the years are, I am confident, not those sponsored by the Committee of Seven nor any others to be arrived at by their methods of investigation or derived from their views of growth in arithmetical ability. Rather, the changes will be those which will be seen to be essential when we know much more about the way in which children learn arithmetic and, hence, about the way in which we should teach arithmetic.

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AUDIO-VISUAL LEARNING AIDS FOR THE PRIMARY GRADES

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The steadily growing number of instructional sound films listed in the *Educational Film Catalog*[1] for many fields of learning at the elementary-school level directs attention to two questions: (1) What contributions can properly prepared sound-film materials make to the learning process at these grade levels? (2) How may such teaching aids be utilized effectively?

It is the purpose of this article to discuss these questions, particularly with respect to their significance for primary-grade instructional procedure, since research and experimentation on the subject are meager, the field is rich with possibilities, and findings are logically applicable also to the intermediate and the upper grade levels.

The typical child enters Grade I when he is approximately six years of age. His primary senses and innate curiosity have permitted him to acquire some knowledge of his environment, and in accordance with his mental ability such information has already shaped itself into concepts of varying nature and complexity. Because of his immaturity such concepts are limited in number, and some no doubt are erroneous, owing to the fragmentary nature of the visual and the auditory stimuli constituting his learning experiences.

Observation will have indicated that his hearing vocabulary developed long before he could talk. That is, early in infancy he acquired an understanding and an appreciation of spoken words much in advance of his ability to speak the words. Later in life, when he could use words for asking questions, he became equipped with a powerful learning tool so that, by the time he reached Grade I, he was familiar, in a superficial way, with the nature and the relationships of many things in his immediate environment. He was not so well conditioned, however, to objects and relationships beyond

[1] *Educational Film Catalog.* New York: H. W. Wilson Co., 1937.

the effective functioning of his limited learning facilities. The school, therefore, is supposed to equip him with learning tools, foremost of which is the ability to read, so that he may pursue the quest of finding out about the world and its ways.

At this time in his life he meets an obstacle which too often holds up or retards his continued learning. Reference is made to the difficulty of learning to read and to the time required for him to develop the degree of reading ability necessary for acquiring further learning. In this age of technology it is fitting that consideration be given to how primary-grade teachers can use mechanical and other devices to increase the effectiveness of their efforts, how they can provide the child with meaningful learning experiences independent of reading ability and conventional teaching aids, particularly where such mechanical devices can increase the scope of the child's knowledge and understanding while concurrently serving as a means of facilitating the process of learning to read. Toward this end the sound motion picture already has been drafted into service, and with its unique property of being able to reproduce when needed a multitude of realistic, dynamic learning experiences, it promises to surmount many barriers to human learning in general and to contribute materially to the education of beginning learners in particular.

ADVANTAGES INHERENT IN SOUND MOTION PICTURE MATERIALS

Scientifically treated audio-cinema materials can overcome barriers to learning, existing even in well-equipped schools, which arise because capable teachers are handicapped by elements beyond their control in bringing to the child more comprehensive learning experiences. It is apparent that distance, for example, prevents the child from meeting realistically the vast number of elements making up world-environment. The sound motion picture knows no geographical or political boundaries. It can bring the world, so to speak, to the individual child and thus furnish him with authentic learning materials, without which the kind and the amount of his learning obviously are limited.[1]

[1] Frederick L. Devereux, *The Educational Talking Picture.* Chicago: University of Chicago Press, 1935 (revised).

Seasonal limitations make up a second barrier to learning. Winter snows, spring rains, summer heat, and the chilling winds of autumn —each may make it impossible for the child to have certain study materials or to engage in selected study activities. The sound film surmounts this difficulty by recording faithfully and reproducing on demand the elements of learning experiences independent of weather restrictions.

Children are slow to learn about a great many things in the world because of the limitations of the unaided human eye. Even with normal vision, many things remain unseen. Space prevents the child from seeing beyond his immediate horizon; density prevents him from peering into solid objects; size will not permit him to gaze into the kingdom of microörganisms; and actions and reactions occur so slowly or so rapidly that he cannot see the processes involved. To provide him with individual apparatus for overcoming these difficulties would require the expenditure of great sums of money. The sound motion picture, with its many technical advantages, not only increases this ability to see but can provide large classes with the same view of a situation at the same instant.

Similarly, the limitations of the child's sense of hearing restricts the type of learning that he can acquire. Most knowledge is in some way associated with sounds; if children can hear the sounds of a situation, their learning is made easier. Not only does the talking picture provide sounds of the ordinary world, but it can make available sounds not usually heard and thus provide additional association cues. Learning is further enriched by incidental sounds. Music or voice inflection, for instance, may be used to advantage in captivating the child's attention and curiosity. As with optical devices, apparatus for reinforcing the individual child's hearing ability can be acquired, but the sound film makes this acquisition unnecessary.

Abstractions related even to primary-grade matter frequently make it difficult for learning to occur. As an example, the story of plant growth is difficult for children to visualize from mere words. It cannot be fully understood from still pictures, but, when the pictures are given life and are interpreted by a carefully prepared and synchronized narration, the story becomes realistic, meaningful, and likely to stimulate the interest and imagination of the young learner.

The restrictions of home and school conditions allow children to come into contact with but a small part of the world in which they live. They cannot travel extensively, inspect scattered industries, see and listen to celebrities, witness natural phenomena, or engage in many other learning activities necessary to obtain the knowledges and the appreciations presented by one ten-minute reel of adequately treated audio-cinema material. The talking picture has the potential power of providing primary-grade children equalized educational opportunity never before realized in the history of education.

Human knowledge is so vast, and ordinary methods of acquiring it are so inefficient, that during the primary-grade years the child learns very little about the sum total. Because of the economies of time and effort effected by the audio-visual instructional film, children coming within its stimulation are enabled to increase the scope of their knowledge tremendously. In addition to acquiring detailed information in specialized concepts, the child may gain information on related concepts, as well as the relation of those concepts to broader areas of thought.

Ordinary methods of presenting primary-grade learning materials have many shortcomings. The presentation may be too involved for the children to grasp; personality defects may not permit the stimulation of attentive thought: speech difficulties may result in misunderstanding; demonstration materials will not be seen by all from the same angle; and written and spoken words have numerous attributes. These and many other inadequacies often result in either laborious learning or misconception. The attention devoted to the preparation of selected sound-film materials, together with the natural appeal of the medium, results in one of the most effective methods of subject-matter presentation that human ingenuity can provide.

The physical requirements of many learning situations do not permit young children to engage in them. Journeys to high mountains, Eskimo life in the polar regions, cherry-blossom time in Japan, visits to native villages in tropical jungles, views of the luxurious vegetation of ocean depths, a glimpse of the world from the stratosphere—these are but a few of the many experiences which through

the sound film young children may enjoy vicariously in the comfort and the security of their classrooms.

The number of learning experiences provided are restricted even in the more fortunately situated schools by the cost and the space requirements of materials and equipment. Nor could such schools provide for the operation, the exhibition, and the maintenance of unlimited instructional facilities. Then, too, laws and other regulations may prevent learning projects from being undertaken. Obviously the sound film can transcend these difficulties and bring to the classroom an array of all kinds of instructional devices. This material can be secured for a relatively small pittance when compared with the tremendous investments in human and material resources involved in the making of the film.

The beginning learner confronts another difficulty in the way subject matter is organized for presentation. Many primary teachers do not have adequate time to devote to this important feature. The scarcity or the abundance of learning materials also makes it difficult even for supervisors to select the elements which are most valuable and which may be arranged into meaningful presentations, complete but not too abstract or too broad in scope for juvenile understanding. The production requirements involved in the preparation of educational sound pictures make it necessary for these difficulties to be overcome at the outset by specialists in the organization of teaching aids. Consequently the teacher is freed from much of the necessity of organizing materials and is permitted to devote her efforts to other needs of the children.

There is a great deal of wisdom in the ancient proverb, "One picture is worth a thousand words." It is probable that one picture will not provide as much confusion in the child's mind as would a thousand words. In addition to words the meanings of which are unknown to the child, there are so many shades of meaning in spoken or written language that verbal chaos easily can come into the learning problem. As an example, consider the question, "Are you reading this article?" Emphasizing each word at a different time in the sentence will give as many meanings as there are words in the sentence. In the professional preparation of instructional sound pictures, vocabulary difficulties are overcome, first, by the

careful selection of words from classified lists and, second, by the association of words with meaningful pictorial action, a proper understanding of the concept involved being thus more nearly assured.[1]

The element of time is a more effective influence in human learning than may appear at first thought. Time determines, to a significant extent, what the child shall learn, how he shall learn it, when he shall learn it, how it will affect his behavior, and how long he will remember what he has learned. At any period of his life he has to learn something about what has happened, what is happening, or what is likely to happen. The sound film can make him appreciate more keenly the significance of what has happened; it can provide him with a vivid interpretation of what is happening; it can suggest realistically what is likely to happen in view of what has happened and what is happening; and it can do these things in a minimum period of time.

The ability of unselected groups of young children to learn varies widely and is a trying problem for even the superior teacher. Experimentation has shown that carefully assembled sound films not only promote learning in general but are particularly effective in conveying ideas to children of subnormal intelligence.[2] In fact, these pupils learn more in proportion to their ability to learn than do the average or the bright pupils. The latter, however, learn much more than they would without the sound film.

The difficulty of motivation frequently manifests itself in classroom situations, and the psychology of learning deals, to a large extent, with the need for motivating the learner's activities. The tools for such stimulation are many and varied, depending on the learning situation involved. In general, however, the matter of interest is important, and in particular instances emotional stimulation may be desirable to make the learning experience more functional. Pupil interests are given every possible consideration in the arrangement of materials in the modern instructional sound film, and, occa-

[1] Leon H. Westfall, *A Study of Verbal Accompaniments to Educational Motion Pictures*. Teachers College Contributions to Education, No. 617. New York: Teachers College, Columbia University, 1934.

[2] Varney C. Arnspiger, *Measuring the Effectiveness of Sound Pictures as Teaching Aids*. Teachers College Contributions to Education, No. 565. New York: Teachers College, Columbia University, 1933.

sionally, harmless emotional elements are introduced to bring about desirable stimulation. The power of the motion picture to stimulate is indicated by experiments with children[1] and by the experiences of theater audiences.

Another barrier to learning guarded against by the sound motion picture is that of misconception. The abundance of learning materials or their complex relationship easily leads to confusion in the child's mind. In the learning process a great deal of time is lost, and untold difficulties develop. In properly assembled instructional sound films there is little opportunity for misconception to occur because of the care exercised in the selection and the arrangement of both auditory and visual elements. The constant appeal of the screen images, together with the happy combination of language symbolism, object visualization, natural and incidental sounds, increases the probability of correct interpretation.

Finally, the reading process itself looms as a barrier to the young child's learning. Inadequate methods and materials, poor habit formation, and mental and physical defects account for most difficulties in beginning reading. Until the child learns to read, he is handicapped in his other learning activities. By means of the advantages previously cited, which are made possible by the wonders of natural speed, ultra-rapid, time-lapse, animated, trick, X-ray, and telescopic photography, and by the use of intrinsic and incidental sounds, together with carefully prepared comments synchronized with attention-commanding devices and the action of the picture, the instructional sound film can provide the young child with learning experiences which are independent of reading ability. This does not mean that children should not be taught to read or that teachers should cease to give attention to reading disability; it means that audio-visual teaching aids should be utilized to enrich the child's supply of general and specific knowledge, which in turn can motivate interest in learning to read, and that these aids should be made an integral part of subsequent reading activities. Because of its universal appeal, the sound motion picture has great promise of becoming a powerful ally of the primary-grade teacher.

[1] Henry James Forman, *Our Movie Made Children*. New York: Macmillan Co., 1933.

NEW AUDIO-VISUAL INSTRUCTION AIDS FOR PRIMARY-GRADE USE

Prior to the last year few, if any, silent or sound motion pictures were prepared specifically for utilization in the lower grades. Some venturesome efforts were made, with varying degrees of success, to show younger pupils films intended for higher age levels, and experimentation has proved that, when properly used, such films contribute substantially to primary-grade learnings.[1] However, a recent project involving the production of sound films especially arranged for primary-grade children opens up a new field for teaching endeavor.

Four subjects, "Animals of the Zoo," "Adventures of Bunny Rabbit," "Farm Animals," and "Poultry on the Farm," produced through the collaboration of Arthur I. Gates and Celeste C. Peardon, of Teachers College, Columbia University; Ernest Horn, of Iowa State University; and Erpi Picture Consultants, New York, have already been released. Additional subjects are in the process of preparation, with the tentative titles of "Farm Crops," "Trains," "The Mail," "Dairy Products," and "The Fire Department." Other subjects, such as "Boats," "Airplanes," "Automobiles," "The Policeman," "Squirrels," "Builders," "Birds," "Teeth," and "Safety" are contemplated for future production. Initial utilization of the films already released has evoked much interest and approval by classroom teachers who have successfully experimented with the materials in several sections of the country.

However, the optimum values of the films will not be fully appreciated until primary-grade teachers give serious study to how such didactic auxiliaries may be used, not for entertainment purposes, but for opening up new horizons for the child as an integral part of reading and other study activities. For this purpose teachers and supervisors will find Brunstetter's book[2] of timely assistance. Brunstetter's findings are based on extensive field studies in which creative teachers utilized selected sound films for a variety of purposes: (1) to introduce a new teaching unit; (2) to convey major

[1] Unpublished research conducted by Laura K. Eads in the schools of Pelham, New York.

[2] M. R. Brunstetter, *How To Use the Educational Sound Film.* Chicago: University of Chicago Press, 1937.

facts or concepts of a unit of instruction; (3) to enrich or extend the content of a unit's work; (4) to provide rapid-survey or background information; (5) to vitalize special projects, such as window gardening; and (6) to use in irregular activities, such as auditorium programs, demonstration lessons, and acquainting community groups with modern teaching materials and methods.

Some idea of the techniques of teaching with the sound film may be secured by considering what the creative teacher can do in the way of adapting the content of any film to the interests, the needs, and the abilities of her class; how she may go about introducing the first, second, or third showing of the films; how the film may be manipulated during the showings to achieve predetermined objectives; and how follow-up activities may be planned, launched, developed, and evaluated.

There need be no fear that the sound film or any other mechanical device will supplant the classroom teacher. In this technological age the sound film should rather be thought of as an opportunity for professionally minded teachers, charged with the educational destinies of boys and girls who will become tomorrow's citizens, to utilize in their daily work the products of science and invention.

THE VOCABULARY AND SPELLING ERRORS OF THIRD-GRADE CHILDREN'S LIFE-LETTERS

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IMPORTANCE OF A CORE VOCABULARY

In language-learning, whether it is in letter-writing, spelling, or composition, a valid core vocabulary is of vital importance. Horn has shown that a relatively few words with their repetitions make up a large part of the running correspondence of adult writing. In fact, the most commonly used 100 words with their repetitions comprise more than 58 per cent of the running correspondence of adults. The most commonly used 1,000 words make up nearly 90 per cent and the most common 2,000 words comprise 95 per cent of the running written correspondence of adults.[1]

Fitzgerald,[2] in his study of fourth-, fifth-, and sixth-grade children's letters written outside the school, showed that the most common 100 words comprised approximately 65 per cent of the running writing of children and that the most commonly used 2,106 words[3] made up approximately 97 per cent of the running writing of the letters studied.

PURPOSE OF THIS STUDY

Because the lists referred to have been helpful in making curriculums, it was thought that a study of the vocabulary and spelling errors of third-grade children would be of additional value. Since the ability to use words without error at an early age would seem to

[1] Ernest Horn, "The Curriculum of the Gifted: Some Principles and an Illustration," *Report of the Society's Committee on the Education of Gifted Children*, p. 87. Twenty-third Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1924.

[2] James A. Fitzgerald, "The Vocabulary, Spelling Errors, and Situations of Fourth, Fifth, and Sixth Grade Children's Letters Written in Life outside the School." Unpublished Doctor's thesis, University of Iowa, 1931.

[3] James A. Fitzgerald, "The Vocabulary of Children's Letters Written in Life outside the School," *Elementary School Journal*, XXXIV (January, 1934), 358–70.

have an important effect on the growth of ability to write, this investigation was made. Accordingly, the purposes of this study were to obtain a valid writing core vocabulary for third-grade children and to indicate the difficulty of that vocabulary.

COLLECTION AND HANDLING OF DATA

Requests were sent to principals and superintendents in many school systems in the Middle West for real letters of third-grade children which had been received through the mail.

Twelve hundred and fifty-six letters were collected. Of these letters, 539 were written by boys and 717 were written by girls in 27 states from New York to California and from North Dakota to Texas. More than a thousand of these letters were written by children living in towns and cities, and fewer than 200 were written by children living on farms.

In the 100,840 running words of the 1,256 letters, 2,928 different words were recorded, and 8,504 spelling errors were tabulated. The 692 words used ten times or more are presented in Table 1, with the frequency of use and the frequency of error in spelling for each word.

FINDINGS AND RESULTS

As was true of adult, high-school, and upper-grade writing, "I" was found to be the word most frequently used by children at the third-grade level. The 100 most common words were used 69,191 times.

This list of 692 words should be of help in making a spelling curriculum. It should be of value in teaching young children to know those words which are most often used in writing and to know how to spell those which are very often misspelled.

TABLE 1

THE 692 WORDS USED 10 TIMES OR MORE IN 1,256 LETTERS WRITTEN BY THIRD-GRADE CHILDREN IN LIFE OUTSIDE THE SCHOOL

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
a	2,482	12	bed	89	3
able	10	1	been	116	18
about	149	6	before	59	14
address	23	5	best	76	4
after	129	9	bet	11	3
afternoon	59	22	better	88	5
again	116	18	big	99	3
age	16	.....	birds	10	1
ago	31	2	birthday	114	24
all	572	16	black	15	1
almost	18	7	bless	158	18
along	143	27	blue	24	2
already	35	13	book	80	4
also	49	4	books	39	6
altar	13	12	both	21	3
always	27	7	bought	29	1
am	1,435	73	boundary	14	1
an	49	3	box	71	3
and	3,087	79	boy	36	1
another	28	8	boys	110	14
answer	76	25	bring	138	9
any	87	9	broke	16	5
anything	24	13	brother	74	10
apples	14	3	brothers	14	2
Apr.	18	1	brought	27	4
April	289	29	brown	11	4
are	1,828	16	bunny	13	2
aren't	10	4	busy	22	2
arithmetic	91	26	but	320	12
around	37	2	buy	50	6
as	104	2	by	66	8
ask	46	.....			
asked	18	2	cake	42	1
at	448	7	call	11	.....
aunt	128	13	called	16	1
aunty	14	5	came	48	2
away	41	8	camera	10	5
			can	216	7
baby	78	9	candy	71	5
back	126	7	cannot	11	1
bad	34	.....	can't	54	8
ball	43	2	cap	10	1
baseball	31	13	car	23	.....
basket	28	2	card	64	5
basket ball	29	27	cat	15	1
be	402	2	catechism	23	6
because	183	26	cents	20	3

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
chickens	20	4	don't	227	66
childhood	15	.....	down	180	12
children	75	10	draw	11	3
Christmas	117	27	drawing	19	6
church	63	11	dress	36	2
class	47	2	dressed	10	2
classmate	19	7	dresses	20	4
clean	10	.....	drill	16	2
close	198	18	during	16	2
closing	12	3			
clothes	17	7	each	30	.....
coasting	11	1	early	30	2
coat	13	.....	Easter	129	19
cold	97	5	easy	13	1
come	482	11	eat	33	.....
comes	24	5	eggs	22	2
coming	110	14	eight	53	3
Communion	76	27	either	11	2
contest	16	1	else	20	8
corn	15	.....	end	16	.....
cough	13	4	enjoy	14	4
could	120	16	enjoyed	15	5
couldn't	19	10	enough	17	6
cousin	143	26	evening	15	2
cows	10	3	ever	15	3
cream	27	11	every	182	42
cute	10	.....	everybody	42	19
			examinations	12	8
dad	28	1	excuse	14	5
daddy	209	21	eyes	12	2
dance	13	.....			
day	247	27	family	23	7
days	51	3	far	11	1
dear	1,326	16	father	114	2
Dec.	33	9	feast	15	1
December	45	4	Feb.	88	35
did	287	6	February	53	13
didn't	66	33	feel	36	7
died	15	1	feeling	123	14
different	10	6	fell	18	.....
dinner	39	5	few	90	5
dishes	22	1	fifth	11	2
do	439	10	find	30	2
doctor	14	7	fine	538	47
does	32	7	finished	19	8
dog	31	2	first	144	22
doing	35	4	fishing	10	1
doll	76	4	five	26	2
dolls	34	.....	flowers	28	7
done	26	7	folks	19	5

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
fool	14	2	ha	31	1
football	46	31	had	632	14
for	834	32	hair	12	1
forget	39	6	half	43	3
forgot	27	1	Halloween	58	52
found	11	1	hand	15	.....
four	42	6	handkerchiefs	13	8
fourth	73	25	happy	50	3
Friday	65	13	hard	59	7
friend	318	77	hardly	14	2
friends	28	10	has	174	4
from	592	57	have	1,349	39
front	10	1	haven't	36	16
fruit	17	3	having	153	25
fun	170	12	he	231	2
funny	18	2	head	17	1
			hear	83	7
game	119	7	heard	14	1
games	47	7	hello	88	19
garden	17	3	help	37	5
gave	88	1	her	241	4
gee	14	1	here	221	20
geography	23	8	hide	15	3
get	416	9	high	20	1
gets	14	2	hike	16	2
getting	203	46	hill	10	.....
girl	95	5	him	79	5
girls	63	4	his	68	2
give	67	1	history	13	2
glad	159	11	holy	63	2
glass	10	.....	home	298	21
go	586	7	hope	553	30
God	161	11	hoping	28	5
goes	17	5	hospital	11	6
going	731	37	hot	16	.....
gone	19	.....	hour	11	2
good	293	8	house	140	8
good-by	142	115	how	1,067	59
got	557	4	hundred	25	3
grade	379	37	hurry	11	5
grades	12	2			
grandma	86	14	I	6,052	25
grandma's	16	10	ice	41	9
grandmother	26	4	I'd	12	5
grandpa	42	15	if	196	8
green	11	.....	I'll	38	14
ground	11	3	I'm	51	27
guess	75	21	in	1,282	13
gym	13	6	Indian	20	3

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
ink	11	1	mad	16	.....
into	14	3	made	150	18
is	1,765	13	make	76	5
isn't	22	11	making	49	15
it	1,048	27	mama	66	7
it's	23	16	man	25	3
			many	72	5
Jan	76	22	marbles	27	7
January	47	9	Mar	33	10
July	10	.....	March	148	16
jump	18	2	mark	22	.....
June	42	1	Mass	39	4
just	224	13	may	99	15
			May	138	13
kids	27	3	maybe	33	7
kind	18	1	me	699	12
kinds	11	.....	mean	10	2
kisses	46	6	merry	10	3
know	235	51	might	25	6
			mile	16	1
language	17	4	milk	11	.....
last	177	10	mine	24	1
late	18	1	miss	25	4
learn	18	3	Miss	142	10
learned	10	3	missed	19	1
learning	10	4	Monday	67	5
left	31	3	money	33	7
lesson	36	6	month	40	9
lessons	48	19	months	19	5
let	63	2	more	141	10
letter	476	38	morning	139	33
letters	47	8	most	18	1
like	776	19	mother	634	13
liked	38	5	mother's	20	11
likes	12	2	moved	20	4
lines	51	5	movie	10	1
little	286	10	Mr	27	5
live	35	.....	Mrs	51	21
lonesome	14	8	much	202	16
long	80	6	music	48	4
look	21	3	must	59	5
lost	21	.....	my	1,172	58
lot	107	4	myself	22	14
lots	98	18			
love	342	17	name	217	28
loving	143	21	named	13	5
lovingly	52	12	names	18	1
luck	15	1	near	13	3
lunch	12	1	nearly	13	1

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
never	29	1	pick	10	.....
new	200	14	picking	12	1
news	15	.....	picnic	50	9
next	109	10	picture	30	9
nice	187	17	pictures	18	4
night	151	17	pie	10	3
nine	38	2	piece	46	18
no	45	4	pieces	16	7
noon	12	1	place	31	4
not	365	14	play	351	13
nothing	17	2	played	61	13
Nov.	52	18	playing	73	5
November	64	9	plays	11	1
now	348	32	please	292	48
			pony	12	3
O	10	1	popcorn	10	3
o'clock	63	50	practicing	15	4
Oct.	51	21	pray	42	4
October	76	13	prayer	25	9
of	879	10	prayers	22	11
off	41	8	praying	18	4
offer	13	3	present	17	1
office	19	2	pretty	88	27
old	205	.....	program	31	4
on	434	9	P.S.	54	10
once	10	1	pupil	31	5
one	281	12	pupils	18	2
ones	11	1	put	53	1
only	48	1			
or	87	4	quite	30	7
other	94	9			
our	473	53	rabbit	18	2
out	438	21	rabbits	14	4
outside	16	12	radio	48	11
over	158	15	rain	19	3
			read	71	3
page	10	.....	reading	77	5
pair	21	.....	ready	11	2
papa	15	1	real	23	2
paper	51	9	received	75	34
papers	13	2	recess	23	7
parents	70	5	red	29	.....
park	18	.....	regards	11	4
party	110	11	remember	13	5
pass	32	5	report	32	7
passed	16	4	rest	14	.....
pen	18	3	ribbon	13	1
pencil	14	4	ride	29	.....
people	21	5	right	82	29
piano	22	8	ring	10	.....

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
room	95	11	some	345	23
rope	22	3	something	29	12
rosary	10	6	sometime	22	15
run	12	.....	sometimes	40	20
			son	201	18
safe	17	3	song	13	2
said	163	12	soon	240	14
same	83	11	sooner	12	3
sand	12	.....	sorry	50	3
Santa Claus	15	7	spelling	110	7
Saturday	76	19	spring	30	2
saw	38	2	Sr.	18	3
say	193	15	St. (saint)	42	7
says	23	.....	stamps	17	4
school	1,170	78	star	15	2
score	24	3	stars	11	1
second	55	7	start	21	2
see	252	1	started	31	6
seek	14	3	stationery	15	12
seen	18	1	stay	48	2
send	109	20	stayed	13	5
sending	29	5	still	40	.....
sent	53	19	stockings	12	5
Sept.	13	3	stop	12	.....
September	18	5	store	23	1
set	30	1	stories	13	5
seven	14	.....	story	25	.....
she	344	5	study	25	3
shoes	31	6	studying	21	8
should	41	4	such	10	.....
show	161	7	suit	23	5
sick	114	10	summer	75	12
side	13	.....	Sunday	463	69
since	24	4	supper	32	3
sincerely	42	17	suppose	41	16
sing	27	3	supposed	11	7
singing	15	2	sure	135	19
sister	388	16	surely	11	3
sisters	16	6	surprise	13	8
sit	13	.....	swimming	16	4
six	15	.....			
skate	11	1	table	24	3
skates	14	3	tables	11	1
skating	23	7	tag	10	.....
sled	17	2	take	75	8
sleep	16	.....	taking	16	2
snow	78	2	teach	20	.....
snowed	13	2	teacher	197	22
snowing	12	1	teacher's	91	63
so	463	9	teaching	10	1

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
team	15	6	uncle	53	7
teeth	14	.....	until	28	11
tell	227	12	up	214	3
telling	12	2	us	221	9
ten	36	1	use	15	2
than	29	13	used	14	9
thank	59	10			
thanks	14	.....	vacation	76	24
Thanksgiving	43	16	valentine	67	17
that	502	10	valentines	43	16
that's	24	23	very	347	32
the	2,736	28	visit	34	4
their	60	31			
them	185	10	wait	23	3
then	237	23	waiting	19	3
there	267	34	walk	30	4
these	15	1	want	117	18
they	198	18	wanted	30	2
thing	24	3	wants	18	2
things	45	3	warm	31	4
think	155	7	was	648	15
thinking	13	4	wash	10	2
third	191	18	water	18	.....
this	461	15	way	27	1
thought	52	8	we	2,033	60
three	79	2	wear	21	9
threw	10	6	weather	49	9
through	25	10	Wednesday	26	7
Thursday	30	7	week	142	7
till	22	1	weeks	43	11
time	323	24	well	350	19
times	23	2	went	273	17
tired	13	.....	were	158	12
to	3,497	37	we're	12	7
today	229	71	what	210	12
together	18	8	when	319	31
told	63	2	where	29	5
tomorrow	33	18	which	22	2
tonight	60	12	while	31	2
too	348	158	white	33	5
took	39	.....	who	27	1
town	47	7	whole	13	5
tree	17	.....	why	47	6
trees	12	1	will	1,103	21
truly	91	25	winter	24	1
try	29	2	wish	189	11
trying	12	2	with	489	31
Tuesday	57	7	won	49	7
turkey	14	.....	wonder	10	2
two	173	45	won't	26	13

TABLE 1—*Continued*

Word	Frequency of Use	Number of Times Misspelled	Word	Frequency of Use	Number of Times Misspelled
woods	14	3	year	87	.....
words	19	5	years	158	16
work	85	3	yellow	12	1
working	32	3	yes	24	2
would	194	23	yesterday	110	12
wouldn't	11	1	yet	68	.....
write	495	78	you	3,689	194
writing	139	30	your	1,290	100
wrong	11	1	yours	170	33
wrote	86	15			
			&	26	.....
Xmas	18	8			

INSTITUTIONAL TEACHER PLACEMENT AND SERVICE

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The placement problem is of major importance to a teacher-training institution just as recruitment is a major problem for a superintendent of schools. The only difference between the two problems is the angle from which they are observed. From the superintendent's point of view the problem is to secure the best teacher available for the salary that his school can afford to pay. From the standpoint of the teacher-training institution the problem is to turn out well-prepared candidates from whom the superintendent can recruit his teachers. It is a fundamental fact in vocational training that, before an individual can be prepared for a position, the essential requirements for success in that position must be known.

In the spring of 1936 a questionnaire was mailed to 460 superintendents of schools whose names were listed in the *Michigan Education Directory, 1935–1936*. The purpose of this study was fourfold: (1) to ascertain the attitudes of school superintendents toward the common practices of teacher-training institutions in assisting the candidates to secure positions, (2) to ascertain the attitudes of school superintendents toward the common practices of candidates in seeking positions, (3) to discover what information about applicants is most desired by superintendents, (4) to secure information which might be of value to training institutions in their efforts to improve both the quality of their product and their service to graduates.

The 307 replies are classified in Table 1. All unsigned replies which could not be identified were classified as "unknown." According to the *Michigan Education Directory, 1935–1936*, the superintendents replying to the questionnaire, exclusive of those marked "unknown," have supervision over 10,117 teachers and 352,013 children of school age.

The superintendents wish an applicant to furnish complete infor-

mation about himself in his letter of application. The five items of information most frequently desired in the letter of application, in order of the number of times mentioned, are: (1) teaching experience, (2) academic qualifications, (3) extra-curriculum activities, (4) marital status, and (5) home address.

The four types of references most desired by superintendents, in the order checked, are: (1) previous superintendent, if the applicant has had teaching experience; (2) the critic teacher during apprentice

TABLE 1

REPLIES RECEIVED TO QUESTIONNAIRE FROM 307 SUPERINTENDENTS IN MICHIGAN DISTRIBUTED ACCORDING TO ENROLMENT OF HIGH SCHOOLS IN TOWNS RESPONDING

High-School Enrolment	Number of Replies
1– 99	80
100–199	100
200–299	48
300–499	24
500–999	22
Above 1,000	11
Unknown	22
Total	307

teaching; (3) the professor in the applicant's major subject; and (4) the director of extra-curriculum activities. Only fifty-three superintendents included a minister in their preferred list of references. The following statement is typical of the remarks written on the questionnaire form, "The minister never says anything bad about the person he is recommending."

That religion plays an important part in the selection of candidates is shown by the fact that 219 (71 per cent) of the administrators expressed a wish to have included in the confidential records sent out from the placement office a statement concerning the candidate's religious preference.

The ten most desirable teacher characteristics, in order of preference, are character, academic preparation, ability to maintain discipline, co-operation, professional training, health, honesty, tact, loyalty, and professional interest.

A Bachelor's degree is required by 284, or 97 per cent, of the superintendents answering the question. Eight schools require five years of college training, while only one school will employ high-school teachers with less than four years of college training. College training required for teaching in the elementary school varies from one to four years. Ninety-nine schools require four years, 115 require three years, 68 require two years, and one superintendent will employ elementary-school teachers with only one year of college training.

Some schools make teaching experience a requisite for securing a teaching position. Two years of experience is required by 14 per cent of the schools, while 7 per cent require one year of teaching experience. Inexperienced high-school teachers are employed by 79 per cent of the superintendents. Inexperienced elementary-school teachers are employed in 81 per cent of the schools.

Administrators were asked to check the most desirable extra-curriculum activity training which candidates might present. The five most preferred, in order of preference, are dramatics, athletics, club activities, playground activities, and music.

Information received on certain phases of the questionnaire is shown in Table 2.

A copy of each letter of recommendation, unedited, should be included in the confidential records of the candidate (Items 8 and 10). Superintendents also favor the establishment of a central office in the state, where the records of all teachers looking for positions would be kept available to superintendents at all times (Item 11).

There was difference of opinion about the value of advertising material sent out by placement officers concerning available teacher candidates (Item 12). Seventy-three per cent of the superintendents answering the question believe that a school should advertise its graduates, while 27 per cent think that the practice is not worth while. If advertising material is sent out from placement offices, it should include a summary of the candidate's preparation and qualification. This material, if sent out, should probably reach the superintendent some time in March, since 125 superintendents (54 per cent of those checking a preference) indicated March as the time when such material would be of most use to them.

TABLE 2

DATA ON QUESTIONNAIRE ON TEACHER PLACEMENT SUPPLIED BY 307 SCHOOL SUPERINTENDENTS IN MICHIGAN

Item	Number of Superintendents
1. Do you require a personal interview?	
Yes	284
No	21
2. When personal application is requested, does the school pay any of the candidate's expense if he is not employed?	
Yes	38
No	260
3. Should the candidate personally canvass the field?	
Yes	113
No	156
4. Should candidate send out letters of inquiry?	
Yes	141
No	140
5. Should candidate apply only at superintendent's request?	
Yes	130
No	133
6. Should candidate apply only upon official notification of a vacancy?	
Yes	180
No	88
7. Should candidate apply only when certain a vacancy exists?	
Yes	226
No	45
8. Do you prefer a copy of each letter of recommendation?	
Yes	191
No	69
9. Do you prefer a graph rating of candidate as excellent, good, average, below average, etc.?	
Yes	182
No	45
10. Should letters of recommendation be edited?	
Yes	99
No	135
11. Do you favor a central office for records?	
Yes	222
No	63

TABLE 2—*Continued*

Item	Number of Superintendents
12. Should training school advertise candidates?	
Yes	209
No	79
13. Is home environment of candidate important?	
Yes	210
No	77
14. Do you aim at certain ratio of men and women teachers?	
Yes	218
No	74
15. Do you request teacher participation in community affairs?	
Yes	156
No	144
16. Do you prefer teacher participation in community affairs?	
Yes	284
No	4
17. Do you require health examination of teachers?	
Yes	23
No	274
18. Is health examination of teachers desirable?	
Yes	254
No	20
19. Do you employ an applicant without the recommendation of the training school?	
Yes	80
No	203
20. Prefer letter of application:	
Written in longhand	133
Typewritten	107
21. Prefer confidential record:	
Sent at request of superintendent	269
Sent at request of candidate	75
Accompany letter of application	53
Contain detailed statement of hours, courses, etc.	148
Major and minor courses in detail with remainder of record summarized	118
22. If no candidate available, placement officer should:	
Notify superintendent to that effect	78
Suggest where candidate might be found	186
Pass on information to other institutions	44

TABLE 2—*Continued*

Item	Number of Superintendents
23. Superintendent sends notice of teaching vacancy:	
To a few selected teacher-training schools	280
To Michigan Education Association office	104
To all teacher-training institutions in state	18
To commercial agencies:	
Regularly	15
Occasionally	185
Never	94
24. Quality of scholarship preferred in candidate:	
Superior	59
Above average	219
Average	23
25. Prefer candidate present:	
One major and two minors	150
Two majors and one minor	79
One major and three minors	40
Two majors only	19
26. Prefer teachers remain in community:	
Every week end	13
One-half of week ends	100
Three-fourths of week ends	52
Leave matter to judgment of teacher	120
27. The typical high-school teacher teaches in:	
One subject field	82
Two subject fields	184
Three subject fields	21
28. The typical elementary teacher teaches in:	
One grade or subject field	119
Two grades or subject fields	117
Three or more grades or subject fields	39
29. Superintendent prefers candidates from:	
State teachers' college	153
State university	30
Liberal-arts college	25
No preference	96

Administrators feel that teachers should participate in community activities (Items 15 and 16). While only a little over 50 per cent of the superintendents request participation in community affairs, over 98 per cent of those answering the question prefer that their teachers enter into community activities. The large percentage

of opinion in favor of a health examination for teachers (Items 17 and 18) adds weight to the suggestion that a certificate of health should be required of all teachers and teacher candidates. Although only 23 of the schools require a health examination of teachers,

TABLE 3

SCHOOL POLICY CONCERNING CERTAIN PERSONAL HABITS OF TEACHERS REPORTED BY 307 SUPERINTENDENTS IN MICHIGAN

HABIT	SCHOOLS PERMITTING PRACTICE		SCHOOLS TOLERATING PRACTICE		SCHOOLS FORBIDDING PRACTICE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Drinking intoxicating liquor:						
Men	4	1.4	35	12.2	247	86.4
Women	2	0.7	32	11.1	253	88.2
Smoking:						
Men	72	25.8	156	55.9	51	18.3
Women	17	6.2	92	33.6	165	60.2
Dancing:						
Men	253	87.5	35	12.1	1	0.4
Women	252	87.2	36	12.5	1	0.4
Playing cards:						
Men	262	90.0	29	10.0	0	0.0
Women	262	90.0	29	10.0	0	0.0
Using profanity:						
Men	3	1.1	40	14.4	234	84.5
Women	3	1.1	26	9.4	248	89.5

254 (83 per cent) of the superintendents feel that it would be a desirable requirement.

A minimum practice-teaching mark of B is required by 71 per cent of the superintendents, and only twenty-three administrators are willing to accept a practice-teaching mark of C. Item 27 in Table 2 shows that the typical high-school teacher teaches in two subject fields, and Item 28 indicates that the typical elementary-school teacher teaches in one grade in 119 schools and in two grades in 117 schools. It is also interesting to note (Item 24) that 71 per cent of

the superintendents prefer a candidate of above-average scholarship to one of average or superior scholarship. Opinion varies (Item 26) about the teacher's remaining in the community over the week end, but there seems to be a feeling among superintendents that this matter should be left to the judgment of the individual teacher.

TABLE 4

PREFERENCES OF 307 SUPERINTENDENTS IN MICHIGAN FOR MEN OR WOMEN TEACHERS

SUBJECT OR GRADE	SUPERINTENDENTS PREFERRING MEN		SUPERINTENDENTS PREFERRING WOMEN		SUPERINTENDENTS WITH NO PREFERENCE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
High school:						
English	23	7.5	223	72.6	61	19.9
Language	5	1.6	238	77.5	64	20.9
Mathematics	221	72.0	11	3.6	75	24.4
Science	267	87.0	1	0.3	39	12.7
Social science	170	55.4	39	12.7	98	31.9
Commercial subjects	73	23.8	114	37.1	120	39.1
Elementary school:						
Grades I–IV	1	0.3	268	87.3	38	12.4
Grade V	4	1.3	253	82.4	50	16.3
Grade VI	19	6.2	233	75.9	55	17.9
Grade VII	101	32.9	101	32.9	105	34.2
Grade VIII	124	40.4	74	24.1	109	35.5
Supervisor of elementary grades	31	10.1	93	30.3	183	59.6

Table 3 shows a difference in the standards of conduct for men and women teachers in the case of smoking. Smoking is forbidden to women teachers by 60 per cent of the schools and to men teachers by only 18 per cent of the schools.

The superintendents' preferences for men or women teachers are shown in Table 4. These superintendents greatly prefer men teachers for mathematics, science, and social science in high school, while women teachers are preferred for English and language. Women teachers are preferred for the first six grades in the elementary school.

The large variety of teaching combinations suggested by super-

intendents indicates an administrative weakness. A common standard of teaching combinations would facilitate both the recruitment and the training of teachers. Table 5 shows that some teaching combinations that are hard to fill in some schools are easy combinations to fill in other schools. Superintendents indicate a shortage of

TABLE 5

TEACHING COMBINATIONS WHICH 307 SUPERINTENDENTS IN MICHIGAN REPORTED WERE EASY TO FILL AND HARD TO FILL

Combination	Frequency of Mention
Combinations hard to fill:	
Latin and English	31
Music and art	19
Commercial with any subject	16
Mathematics and foreign language	14
Mathematics and science	10
English and mathematics	9
Elementary and music	8
Science and coaching	8
Manual training and agriculture	7
History and mathematics	7
English and science	7
Latin and music	5
Home economics and language	5
56 other combinations	113
Combinations easy to fill:	
Mathematics and science	77
History and English	70
English and language	58
27 other combinations	49

early elementary-school, music, home-economics, and commercial teachers. An oversupply of social-science and English teachers is indicated.

The suggestions most frequently offered by superintendents on how to improve a training institution's service to its graduates in the field and how to improve the quality of candidates prepared by teacher-training institutions are shown in Table 6. Fourteen suggestions on how to improve an institution's service and twelve suggestions on how to improve the quality of candidates were omitted because each was mentioned by fewer than five superintendents.

TABLE 6

SUGGESTIONS TO TEACHER-TRAINING INSTITUTIONS FROM 307 SUPERINTENDENTS IN MICHIGAN

Suggestion	Frequency of Mention
How to improve institution's service to its graduates:	
Keep in touch with their progress through superintendents' reports	39
Conduct real placement bureau for successful graduates	35
Have supervisor of teacher training visit candidates in the field	15
Have department heads follow up candidates in the field	9
Keep graduates advised of any outstanding developments in the educational field	7
Have a round table at the college for first-year teachers	6
How to improve quality of candidates:	
Have higher standards for admission to professional training	76
Have practice teaching done under normal school conditions	53
Give better professional training	32
Make careful and accurate recommendations	22
Have more practice teaching under better supervision	11
Insist on higher social standards for teachers	11
Insist on participation in some extra-curriculum activities	8
Make courses of instruction more practical	8
Give better training in discipline	6
Introduce modern methods of guidance	5
Develop an apprenticeship method for one year	5

CONCLUSIONS

1. A candidate for a teaching position should apply only when certain that a vacancy exists. The letter of application should be written in longhand and include pertinent facts concerning physical status, academic qualifications, church preference, experience in extra-curriculum activities, teaching experience, present occupation, and home address of the candidate. The candidate should expect to make a personal application at his own expense. He should offer as references the superintendent under whose supervision he has taught, the critic teacher, the college professor in his major subject, the director of college extra-curriculum activities, and a businessman.

2. The confidential record should be sent by the training institution at the request of the superintendent and should include copies of unedited letters of recommendation, a summarized statement of the candidate's academic record, and characteristics of the candidate which may be factors in teaching success. A faculty estimate of the candidate's probable success as a teacher is desirable.

3. The most desirable characteristics of candidates are character, academic preparation, ability to maintain discipline, co-operation, and professional preparation. Academic scholarship should be above the average. Most communities prohibit drinking and the use of profanity by both men and women teachers and smoking by women teachers. Teaching experience is not a requisite for obtaining a position in a majority of the schools.

4. The typical teacher teaches in two grades or subject fields and should expect to participate in community activities.

5. An institution should advertise its candidates, and the information should reach superintendents in March or February. Institutional placement officers should strive for a greater degree of co-operation in their efforts to serve schools.

6. Men are preferred as teachers of science, mathematics, social science, and for Grade VIII. Women are preferred as teachers of language and English and for the first six elementary grades.

7. Institutions should raise the standards for admission to professional training. Practice teaching should be done under normal teaching conditions. Institutions should keep in touch with their graduates and assist them in achieving success as teachers.

8. These superintendents use regularly the institutional placement offices, the Michigan Education Association placement bureau, and commercial agencies. They would prefer, however, the establishment of a central office in the state where records of all unemployed teachers may be kept available to superintendents.

9. There is need for better administration of the curriculum in order that the teaching combinations may be reduced in number and complexity.

10. Superintendents are in favor of requiring a health examination of all teaching candidates.

SELECTED REFERENCES ON PRESCHOOL AND PARENTAL EDUCATION

FLORENCE L. GOODENOUGH
University of Minnesota

This bibliography covers the period from December 1, 1936, to December 1, 1937. The plan of selection is the same as that used in previous years.

Technical and Experimental Studies

105. Ackerley, Lois A., Ojemann, Ralph H., Neil, Berniece, and Grant, Eva. "A Study of the Transferable Elements in Interviews with Parents," *Journal of Experimental Education*, V (December, 1936), 137–74.

The first study, "A Comparison of Attitude Scales and the Interview Method" (by Ackerley), shows that well-standardized attitude scales can be substituted for certain parts of the interview with parents without loss of accuracy and with a saving of time. The second, "Parents' Practices and Appraisal of Child's Growth" (by Ojemann and Neil), shows that questionnaires filled out by parents agree closely with data obtained on a standardized interview when only concrete items, such as eating and toilet items, are considered but that items dealing with social and emotional development often show divergence when the two sources are compared. The third study, "Integration of Behavior Factors and Emotional Control" (by Ojemann and Grant), is an experimental investigation of the Luria techniques as a means of detecting basic conflicts in parents and disturbances of the parent-child relationship. These studies suggest a number of methods that may improve or supplant the interview in parent education.

106. Ames, Louise Bates. *The Sequential Patterning of Prone Progression in the Human Infant.* Genetic Psychology Monographs, Vol. XIX, No. 4. Worcester, Massachusetts: Clark University Press, 1937. Pp. 409–60.

Prone progression develops by means of a cephalocaudal sequence, the use of the arms preceding that of the legs.

107. Anderson, Harold H. *Domination and Integration in the Social Behavior of Young Children in an Experimental Play Situation.* Genetic Psychology Monographs, Vol. XIX, No. 3. Worcester, Massachusetts: Clark University Press, 1937. Pp. 341–408.

An elaborate study of the interactions of Iowa City nursery-school children showed them to be less inclined to dominate by force and more ready to play co-operatively than were orphanage children of the same age.

108. AYER, MARY ELLEN and BERNREUTER, ROBERT G. "A Study of the Relationship between Discipline and Personality Traits in Little Children," *Pedagogical Seminary and Journal of Genetic Psychology*, L (March, 1937), 165–70.

A definite relation was found between personality traits of nursery-school children and the methods of discipline used in the home, as reported by parents.

109. BLATZ, W. E. and ASSOCIATES. *Collected Studies on the Dionne Quintuplets*. Toronto, Canada: University of Toronto Press, 1937. Pp. 300.

A series of six studies dealing with the following topics: biological evidence of genetic identity, mental growth, social development, development of self-discipline, training in routine habits (sleeping, eating, toilet, etc.), and development of spoken language. Many illustrations are included.

110. CHASE, W. P. "Color Vision in Infants," *Journal of Experimental Psychology*, XX (March, 1937), 203–22.

By means of a projection apparatus and colored filters of known wave-lengths, an effect of one color moving within the field of another color of equal brightness was produced. It was found that infants as young as fifteen days responded to the moving spot of color by ocular pursuit.

111. COFFEY, HUBERT S., and WELLMAN, BETH L. "The Role of Cultural Status in Intelligence Changes of Preschool Children," *Journal of Experimental Education*, V (December, 1936), 191–202.

Changes in intelligence quotient after attendance at nursery school are negatively related to intelligence quotient at entrance but are unrelated to occupation or education of parents.

112. CRISSEY, ORLO L. *Mental Development as Related to Institutional Residence and Educational Achievement*. University of Iowa Studies in Child Welfare, Vol. XIII, No. 1. Iowa City, Iowa: University of Iowa, 1937. Pp. 82.

With increasing length of institutional residence, a progressive tendency for children to approximate the typical level of their group was noted. Children originally scoring above the average of the group in which they were placed tended to lose; those below it to gain.

113. CRUDDEN, C. H. "Reactions of Newborn Infants to Thermal Stimuli under Constant Tactual Conditions," *Journal of Experimental Psychology*, XX (April, 1937), 350–70.

Nonlocalized (generalized) responses to thermal stimulation were, on the whole, of greater magnitude than localized responses. Both in number and magnitude, responses tended to be greater when the stimulus consisted in a change from the normal skin temperature (33° to 34° C.) to a higher or a lower point than when the change was from a point above or below normal back to the neutral value.

114. FALES, EVALINE. "A Rating Scale of the Vigorousness of Play Activities of Preschool Children," *Child Development*, VIII (March, 1937), 15–46.

The scale, which is based on direct observation of children's play activities, is given in full, together with directions for use and a statistical evaluation of results.

115. FALES, EVALINE. "A Comparison of the Vigorousness of Play Activities of Preschool Boys and Girls," *Child Development*, VIII (June, 1937), 144–58.

No sex differences were apparent in the group studied.

116. GESELL, ARNOLD and ILG, FRANCES L. *Feeding Behavior of Infants.* Philadelphia: J. B. Lippincott Co., 1937. Pp. 210.

An account, illustrated by many photographs, of developmental progress in feeding from the neonatal period to the age of three years.

117. GIESECKE, MINNIE. *The Genesis of Hand Preference.* Monographs of the Society for Research in Child Development, Vol. I, No. 5, Serial No. 5. Washington: National Research Council, 1936. Pp. viii+102.

An intensive study of the development of lateral dominance in seventeen infants from birth to seventeen months of age. Some degree of differential hand preference is shown from birth, but the number of cases of apparent sinistrality is greater among infants than among older children.

118. HARMON, CATHERINE. "Racial Differences in Reaction Time at the Preschool Level," *Child Development*, VIII (September, 1937), 279–81.

Italian children seemed to show a more mature type of reaction, age for age, than other groups. The rank order for the six groups studied was as follows: Italians, negroes, American whites, Jews, Mexicans, American Indians.

119. HATTWICK, BERTA Weiss. "The Influence of Nursery School Attendance upon the Behavior and Personality of the Preschool Child," *Journal of Experimental Education*, V (December, 1936), 180–90.

Attendance at a nursery school seems to improve social adjustment, decrease behavior indicative of inhibitions, and improve routine habits in preschool children.

120. HILDRETH, GERTRUDE H. "Color and Picture Choices of Young Children," *Pedagogical Seminary and Journal of Genetic Psychology*, XLIX (December, 1936), 427–35.

One hundred and thirty-eight children between the ages of three and six years and of superior intelligence were given a series of tests to determine preferences for certain colors and pictures. Of the colors used, orange was first choice, pink second, and red third. Pictures portraying action and including animals were preferred above other types.

121. HILDRETH, GERTRUDE H. "Developmental Sequences in Name Writing," *Child Development*, VII (December, 1936), 291–303.

It is stated that the ability of children to write their own names shows steady improvement between the ages of three and six years without any formal instruction in writing and that exceptional maturity or immaturity in name-writing is a significant developmental sign. Typical samples for each age level are presented.

122. KANTROW, RUTH WILDENBERG. *Studies in Infant Behavior: IV. An Investigation of Conditioned Feeding Responses and Concomitant Adaptive Behavior in Young Infants.* University of Iowa Studies in Child Welfare, Vol. XIII, No. 3. Iowa City, Iowa: University of Iowa, 1937. Pp. 64.

Sixteen infants under four months of age were conditioned to react to the sound of a buzzer. Experimental extinction was later introduced. Both in the establishment of the conditioned reaction and during its extinction, the infants displayed a capacity to utilize significant signals and to discard false leads that has generally been thought to be limited to the adaptive behavior of older persons. The importance of organic state as a determinant of "conditioning readiness" is stressed.

123. KEISTER, MARY E. and UPDEGRAFF, RUTH. "A Study of Children's Reactions to Failure and an Experimental Attempt To Modify Them," *Child Development*, VIII (September, 1937), 241–48.

By means of a training period in which children were allowed to experience success through persisting effort at a graded series of tasks, marked improvement in reactions to difficulty was brought about.

124. LEVY, DAVID M. "Thumb or Fingersucking from the Psychiatric Angle," *Child Development*, VIII (March, 1937), 99–101.

Concludes that many cases of thumb-sucking are the result of insufficient satisfaction of the sucking instinct during infancy. Recommends a return to the use of properly sterilized infant pacifiers as a means of satisfying the suckling drive.

125. LEWIS, SAMUEL J. "The Effect of Thumb and Finger Sucking on the Primary Teeth and Dental Arches," *Child Development*, VIII (March, 1937), 93–98.

A longitudinal study of children in the Merrill-Palmer nursery school shows a clear relation between thumb-sucking and certain types of malformation of the dental arches. Suggestions for treatment are given.

126. MCCLURE, SUE COOK. "The Effect of Varying Verbal Instructions on the Motor Responses of Preschool Children," *Child Development*, VII (December, 1936), 276–90.

While it is in general true that encouragment is more effective than discouragement and emphasis on success more effective than emphasis on failure, this experiment shows that many other factors are also involved in the successful management of children.

127. MARSHALL, EVERETT L. "A Multiple Factor Study of Eighteen Anthropometric Measurements of Iowa City Boys Aged Nine Days to Six Years," *Journal of Experimental Education*, V (December, 1936), 212–28.

A multiple-factor analysis by the Thurstone method of physical measurements of 850 white boys divided into nine age groups. From three to four factors were revealed at each age. Of these, the first was tentatively identified as a "fat factor," and the remaining three were not named.

128. MAST, ELISABETH T. "Motivating Factors in Child Learning," *Child Development*, VIII (September, 1937), 273–78.

A reward following the successful opening of a puzzle box seemed to have a greater motivating effect than an unpleasant sound that continued until the box had been opened.

129. MELCHER, RUTH T. "Development within the First Two Years of Infants Prematurely Born," *Child Development*, VIII (March, 1937), 1–14.

A total of forty-two prematurely born infants were given periodic examinations by means of the Bühler-Hetzer scale. While the results showed a temporary lag in mental development, most of the infants had caught up to the average by the age of five months.

130. MURPHY, LOIS BARCLAY. *Social Behavior and Child Personality*. New York: Columbia University Press, 1937. Pp. viii+344.

A detailed account of the responses of young children to manifestations of distress by their playmates.

131. NEWHALL, SIDNEY N. "Identification by Young Children of Differently Oriented Visual Forms," *Child Development*, VIII (March, 1937), 105–11.

Sixteen children between the ages of three and five years appeared to identify geometrical figures about as readily in reversed as in normal orientation.

132. OLSON, WILLARD C., and KOETZLE, VIOLA SCHUBART. "Amount and Rate of Talking of Young Children," *Journal of Experimental Education*, V (December, 1936), 175–79.

The data indicate that children of nursery-school and kindergarten age have an average verbal output of about 16.5 words per minute at a rate of 186 words per minute while speaking. A time-sampling method with mechanical aids was used.

133. PECK, LEIGH, and HODGES, AMELIA B. "A Study of Racial Differences in Eidetic Imagery of Preschool Children," *Pedagogical Seminary and Journal of Genetic Psychology*, LI (September, 1937), 141–61.

A total of 208 white children, 50 Mexican children, and 50 negro children, all between the ages of three and six years, were tested for eidetic imagery. The negro children were found to lead the other two groups both in the percentage of children reporting eidetic images and in the richness and the detail of their descriptions. For all three groups the percentages of *eidetikers* were greater at ages four and five than at ages three or six years.

134. PORTENIER, LILLIAN G. "Factors Influencing the Social Adjustment of Children of Preschool Age," *Pedagogical Seminary and Journal of Genetic Psychology*, LI (September, 1937), 127–39.

Single factors in the environment are of relatively small significance in determining behavior. It is the total constellation of conditions that counts.

135. PRATT, KARL C. "The Organization of Behavior in the Newborn Infant," *Psychological Review*, XLIV (November, 1937), 470–90.

A discussion of neonatal behavior, in which the gradual progression from generalized to specific responses and the factors affecting the degree of generalization are pointed out.

136. SKEELS, HAROLD M. "A Co-operative Orphanage Research," *Journal of Educational Research*, XXX (February, 1937), 437–44.

Orphanage children who attended a nursery school for a period of nine months showed measurably greater improvement in social maturity than did a control group from the same orphanage who received no special training.

137. SMITH, ENID S. "Teaching the Preschool Child To Reason," *Child Development*, VIII (June, 1937), 191–93.

By pointing out relations of cause and effect, teachers and parents can do much to help the young child form logical generalizations.

138. VAN ALSTYNE, DOROTHY, and OSBORNE, EMILY. *Rhythmic Responses of Negro and White Children Two to Six, with a Special Focus on Regulated and Free Rhythm Situations*. Monographs of the Society for Research in Child Development, Vol. II, No. 4, Serial No. 11. Washington: National Research Council, 1937. Pp. iv+64.

In the ability to keep time to music, negro children exceed white children of the as me age, especially on rhythms that are comparatively simple.

139. WILLIAMS, HAROLD M., MCFARLAND, MARY L., and LITTLE, MARGUERITE F. *Development of Language and Vocabulary in Young Children*. University of Iowa Studies in Child Welfare, Vol. XIII, No. 2. Iowa City, Iowa: University of Iowa, 1937. Pp. 94.

Part I of this study describes a method for eliciting and scoring the speech of young children. Part II describes a method for analyzing and scoring erroneous speech sounds. Part III describes a shorter and more objective form of the Smith Vocabulary Test, a complete copy of which, together with instructions for administration and scoring, is given in Appendix A. Part IV describes a method for testing speech sounds, intelligibility and organization by means of a controlled experimental setup. A manual of instructions for this test is presented in Appendix B.

NONTECHNICAL BOOKS AND ARTICLES PRIMARILY FOR PARENTS, TEACHERS, AND WORKERS IN THE FIELD OF PARENT EDUCATION[1]

140. ANDERSON, HAROLD H. *Children in the Family*. New York: D. Appleton–Century Co., Inc., 1937. Pp. xii+254.

[1] See also Item 182 (Andrus and Associates) in the list of selected references appearing in the April, 1937, number of the *Elementary School Journal*.

A guide to the training of children during the preschool years. Helpful for parents and nursery-school teachers.

141. BEER, ETHEL S. "The Day Nursery as a Laboratory," *Journal of Juvenile Research*, XXI (April, 1937), 83–90.

A plea for more scientific studies of children in day nurseries.

142. CARROLL, ELEANOR GALE COLES. "Managing Two at Once," *Parents' Magazine*, XII (October, 1937), 26–27, 94–96.

A mother of two children tells how she organizes her day.

143. DURSTON, HARRIET. "When Bedtime Means a Battle," *Parents' Magazine*, XII (January, 1937), 21, 58.

Discusses a number of possible reasons for a child's dislike of bedtime, with suggestions for handling them.

144. FRIES, MARGARET E. "The Value of a Play Group in a Child-Development Study," *Mental Hygiene*, XXI (January, 1937), 106–16.

Describes the use of an organized play group for young children as a means for securing direct observations of child behavior that will serve as a basis for treatment and for advice to parents.

145. ORGEL, SAMUEL Z. "Bringing Up Children: Their Healthy Emotional and Volitional Development," *Mental Hygiene*, XXI (July, 1937), 436–51.

The development of a feeling of security through assurance of family affection during the preschool years is essential for healthy adjustment then and later.

146. SHEARSTON, ALICE D. "If a Child Is Jealous," *Parents' Magazine*, XII (December, 1937), 21, 82.

Twelve possible reasons for jealousy in young children.

147. VON BERGE, EDNA E. "Apartment-House Preschools—The Swedish Way," *Childhood Education*, XIV (September, 1937), 14–16.

A brief account of the nursery schools established in low-rate apartment houses by the Better Housing Society of Sweden.

148. WEXBERG, ERWIN, and FRITSCH, HENRY E. *Our Children in a Changing World*. New York: Macmillan Co., 1937. Pp. xii+232.

A book for parents and teachers which stresses the need to allow the child to develop courage, initiative, and a feeling of social responsibility.

Educational Writings

REVIEWS AND BOOK NOTES

Evaluating the superintendency.—The problems of educational leadership are constantly under discussion. Recent months have seen the publication of a number of books in the field of supervision. Some of these are excellent contributions, but of others it may be said, "Just another book on supervision." All these publications undoubtedly are designed to voice the theories and the findings of the authors in attempts to compose the constantly arising differences of opinion concerning the functions of the supervisor in the present educational program and the much-discussed relations between classroom teachers and administrative officers. *The Beginning Superintendent*,[1] in a compass of about six hundred pages divided into twenty chapters, attempts, with success, to cover the range of problems to be found in the fields of educational administration and the educational leadership provided through the supervision of instruction.

Readers should not assume, from the title of the book, that it was written for beginning superintendents only. The veteran in the field of supervision will find the discussions worthy of careful reading. There are helpful suggestions for any serious school administrator who, in order to determine his efficiency, has formed the habit of checking his own work.

The feature that will first appeal to the reader of this book is its logical organization. Certain chapters deal with the administrative functions of the superintendent. Other chapters discuss the specific problems to be found in supervision for the improvement of classroom work. The first chapter, "Education in a Democracy," lays the foundation for a consideration of the philosophy of educational leadership on a co-operative basis. The newer conception of the democratic ideals in education has been defined. For the guidance of persons responsible for curriculum-planning, there is an interpretation of the demands for an educational program designed to provide training for the appreciation of moral and civic responsibilities as a basis for citizenship. Students and practitioners in the field of administration will read with interest the chapters dealing with such timely subjects in public-school administration as "Efficient Office Management," "The School Board," "Financial Problems," "The School

[1] Frederick Elmer Bolton, Thomas Raymond Cole, and John Hunnicut Jessup, *The Beginning Superintendent.* New York: Macmillan Co., 1937. Pp. xxxiv+614. $4.00.

Plant," and "Keeping the Public Informed." Several chapters deal with supervisory functions. The field covered begins with the selection of teachers and the types of in-service training required to maintain and to improve the personnel and is extended to include discussions on guidance, child accounting, and the general principles controlling the grading and the promotion of pupils. The chapters on the use of textbooks and on the organization and use of school libraries are rich in constructive suggestions.

A feature worthy of note, one that is frequently overlooked, is the documentation. Bibliographies and references are complete and accurate. The authors have had the courage to go beyond the deadline of the five-year copyright limit which is one of the recent educational idiosyncrasies. Many references from educational periodical literature have been listed, a field thus being made available which is rich in original case reports from the pens of successful educational practitioners.

The Beginning Superintendent will be read with interest and profit by all students of educational leadership. Members of school boards will find in it standards for the development of educational policies. Classroom teachers will read it to gain an improved conception of the functions and the problems of supervision as they relate to the modern school.

The format of the book is attractive. It is to be regretted that the publishers were unable to set a lower price for the book and thus make ownership possible for a wider field of readers.

WILLIAM J. HAMILTON

SUPERINTENDENT OF SCHOOLS
OAK PARK, ILLINOIS

Educative experiences outside the traditional curriculum in the elementary school.—In progressive schools, both at the elementary and the secondary level, pupils have always engaged in many kinds of experiences which were different and apart from the traditional curriculum. The line of demarcation between the curriculum and the extra-curriculum has not been so patent in the elementary school as in the higher school. Most of the literature on the extra-curriculum, for this reason, has been concerned with the high school.

In recent years, however, this aspect of the life of the lower schools has been given more of the consideration which it deserves by school leaders desirous of recognizing the true educational worth of any and every type of pupil experience. The latest attempt in that direction is an extensive description[1] of practices as they were found in forty elementary schools in thirty-one cities in thirteen eastern, middle western, and western states.

Three unusually elaborate questionnaires were sent to each of the cooperating schools, including a twenty-four-page form to the principal, a second form of eleven pages to each teacher, and a third form of three pages to the

[1] Henry J. Otto and Shirley A. Hamrin, *Co-curricular Activities in Elementary Schools*. New York: D. Appleton–Century Co., Inc., 1937. Pp. xiv+442. $2.75.

sponsor of each organization. From the answers on these forms were taken nearly all the practices which are described as well as the large amount of illustrative material—the elements of which the book is chiefly comprised.

The scope of activities included is somewhat broader than that of the usual treatment, the term "co-curricular activities" being defined as "those school-sponsored child activities which require administrative provision and organizational involvements somewhat different from the more typical classroom activities" (p. 9). Two of the thirteen chapters, in keeping with this definition, deal with "Trips and Excursions" and "Pupil Participation in Messenger, Building Control, and Safety Services," while parts of other chapters are concerned with such subtopics as "Individual Music Lessons," "Supervision of Play Periods," and "Pupil Responsibility for Routine Activities within the Classroom."

Nine of the remaining chapters are devoted to activities more customarily associated with the extra-curriculum, such as assemblies, publications, social and music activities, clubs, athletics, participation in classroom management, councils, and extra-school organizations. The first and the last chapters are largely of a theoretical nature. An appendix reproduces the three questionnaires used to collect the data.

The book is full of useful suggestions to principals and teachers who recognize the value of vigorous participation on the part of children in social activities and services which they consider important. Educators who are skeptical of the significance of such participation may have their eyes opened. College teachers of classes in extra-curriculum activities and in elementary education will find this volume well worth their consideration.

PAUL W. TERRY

UNIVERSITY OF ALABAMA

A new and long-range approach to curriculum-making.—Part XIII of the Report of the Commission on the Social Studies of the American Historical Association is offered to teachers, administrators, and curriculum-makers as a new theory in, and a new approach to, curriculum-making in the social studies.[1]

The distinct contribution of this volume is the "social-process" approach as distinguished from "courses in specialized disciplines," fusion social-science courses, "courses in problems of the day," "institutional" approaches, and others. Their approach is set forth by the authors as "a needed next step" in curriculum-building and in the organization of instruction.

The authors consider the aim and the task of the social studies in the schools to be threefold: "to aid the youth to the fullest practicable understanding of our social order; to a meaningful realization of the ways in which the individual,

[1] Leon C. Marshall and Rachel Marshall Goetz, *Curriculum-making in the Social Studies: A Social Process Approach.* Report of the Commission on the Social Studies of the American Historical Association, Part XIII. New York: Charles Scribner's Sons, 1936. Pp. xviii+252. $1.75.

both pupil and adult, may participate effectively in that order; and to motivation for effective participation" (p. 2). The authors claim that the good features of each of the previous and current approaches "may be fitted" into this "larger synthesis."

Of the eleven chapters in the book, the first deals with the "social-process" approach and with the "fundamental social processes" of society and civilization. These processes (admittedly opportunistic in classification) are listed as follows: (*a*) "The Process of Adjustment with the External Physical World," (*b*) "The Process of Biological Continuance and Conservation," (*c*) "The Process of Guiding Human Motivation and Aspiration," (*d*) "The Process of Developing and Operating the Agencies of Social Organization," (*e*) "The Process of Securing and Directing Cultural Continuance and Cultural Change," and (*f*) "The Process of Personality Molding."

The advantages of this approach are said to be: (1) that it is "an aid to the development of meaning," (2) that it utilizes the "experiential background," (3) that it provides "a needed overview," (4) that it provides "standards for curriculum-making," and (5) that it forms a dependable basis for social engineering.

The "Underlying Features of the Human Scene" (chapter ii), as a basis for the "social-process" treatment, are given as (1) biological powers and capacities (conditioning social structure), (2) human living as group living, and (3) physical environment (conditioning socio-cultural living).

The remaining chapters of the volume deal successively with the social processes enumerated above.

Samples of basic generalizations as implications for the rule of instruction in the social studies are: (1) Men came to live in groups, partly at least, because groups have survival value flowing from the advantages of mass action and from the advantages of specialization. (2) As all hope for future improvement of society lies in cultural change, the oncoming generations must learn to control cultural change. (3) A social-studies curriculum which does not deal constructively with the fact that culture has conferred on man powers to control nature "bungles its obligation to prepare youth for effective participation in an evolving culture" (p. 65). (4) The task of the social studies is not only to describe man's "tremendous ability to reach a flexible adjustment with the physical world" but also "to point out how lamentably short of his opportunities have been man's achievements, how portentous a future impends, and how essential it is to exercise control of development of culture" (p. 84).

There is nothing new in these and other such generalizations and "principles" of social living, but they serve to indicate, to a limited degree, the frame of reference into which the "social-process" approach and methods are to be fitted. The chief difficulty here, however, as in many other "foundations" for curriculum-making is that no concrete materials are offered—no units of learning, no detailed content and organization—to show exactly how this "social-process" method is to be clothed with flesh and blood in the classroom and in the daily

process of teaching and learning. Consequently the book is not one from which the average teacher in service will derive great benefit.

Moreover, to state, as the authors do, that school administrators will know how to adapt this "social-process" scheme to the classroom situation is merely (as all of us who have had part in the construction and supervision of curriculum-revision programs well know) to beg the question. The average school administrator, teacher, and situation at present will not and cannot provide the background and appropriate details of organization, content, and procedure to accomplish such an adaptation. Expert guidance and down-to-earth co-operation from the theorists and the curriculum experts are essential, with main emphasis on *down-to-earth co-operation.*

Other weaknesses of the volume are evident from its very first pages. Among these is the fact that the title of the book is a misnomer. It is not a treatise on "curriculum-making in the social studies" but merely a theory for, and an approach to, curriculum-making. Again, parts of the volume with their suggestions are simple enough for comprehension by, and adaptation to, the average junior or senior high school pupil while other parts are a real challenge to the ability and the versatility of the most advanced teachers in the schools. To assume that what has been worked out in the best experimental schools can with equal ingenuity be adapted and worked out in the vast majority of the schools of the country at present, particularly those most in need of curriculum revision, is to assume entirely too much. In other words, the book includes too much theory and not enough practical suggestions for an effective curriculum-revision program.

In spite of these weaknesses, *Curriculum-making in the Social Studies* is a timely volume. In the "social-process" approach the authors challenge educational philosophers, psychologists, curriculum experts, and progressive teachers and administrators everywhere to reconsider the bases on which they are developing curriculum programs and in some manner to realize more fundamentally the importance of the great social processes as organizing centers around which a practical and functional curriculum for a democratic social order may be built. Evidence of the influence of this volume is being seen already in such programs as the new scope and sequence setup in the curriculum-revision program of the state of Virginia.

R. E. SWINDLER

UNIVERSITY OF VIRGINIA

Historical overview of experimentation in reading.—The reviewer has examined with a great deal of interest a recent publication in the field of reading.[1] The publication opens with the presentation of photographs of outstanding re-

[1] Earl A. Taylor, *Controlled Reading: A Correlation of Diagnostic, Teaching and Corrective Techniques.* Chicago: University of Chicago Press, 1937. Pp. xxviii+368. $3.50.

search workers in the field together with a selected bibliography of the contributions of each worker.

This unique introduction is followed by a historical sketch of objective methods of recording eye-movements. Pictures and diagrams of eye-movement cameras from the earliest to the latest models are inserted at appropriate points in the discussion. Descriptions and illustrations of reading graphs made by these cameras are also presented. The importance of the reading graph may be stated in the words of the author:

> The reading graph not only makes possible the study of binocular co-ordination, but also indicates the number of fixations and regressions, and the reading time. From these data it is possible to compute the reading speed, the span of recognition—which is the most important factor in rapid reading, and the reaction time—that is, the time required to fixate and perceive and comprehend the meaning of the printed symbol [p. 125].

A table of eye-movement norms and averages is given in terms of fixations, regressions, and number of words read per minute for Grades I–VII and for high school and college. The table of norms is supplemented by binocular reading graphs that show the change in the eye habits of the average pupil as he advances academically.

The metronoscope or triple-shuttered tachistoscope, an instrument devised to present reading material in such a manner as to control the reader's eyes in rhythmical left-to-right movements and to condition accurately all return sweeps, is described in Part III. The material in each opening of the instrument is obscured as soon as it has been read. Thus regressive movements are discouraged.

The results of experimental studies relating to controlled reading are presented in Part IV. The factors investigated include physiological defects and eye discomfort among school children, visual inefficiencies as related to failure in mathematics, behavior of the eyes when reading from the metronoscope, diagnosis and correction of reading deficiencies in high school, duction and fusional training in reading, and prism reading with the metronoscope. The discussion ends with a well-organized chapter of trends and conclusions.

On the whole the book is well organized. Its wealth of illustrations and a carefully selected bibliography should make it an excellent reference book for teachers and research workers in education and psychology. Another feature worthy of mention is the introduction of the binocular reading graph. Hitherto most of the experiments on eye-movements have included graphs of one eye only, on the assumption that both eyes move in the same manner. Experiments presented in this book show that this assumption is not necessarily correct. The binocular graphs indicate certain fusional conflicts which may result in inaccurate perception and, in turn, influence reading ability.

W. H. Gray

Kansas State Teachers College
Emporia, Kansas

Life and color in supplementary readers.—To the writing of supplementary reading materials for little children there seems to be no end. This is as it should be. Only through the preparation of new materials can the results of our better understanding of needs and the means for meeting them be incorporated in suitable books for the benefit of boys and girls. To this end a trio of competent authors have pooled their gifts and efforts in producing three useful and attractive volumes.[1]

These colorful volumes are gauged at primer, first-grade, and second-grade levels. The pupil passes progressively from a meeting of Nick and Dick through "Fun with" these interesting lads to "The Story Book" designed for them.

Care in the mechanical makeup of the books and in the nature and the extent of the vocabularies reflects the interests of the senior author. Lest it be assumed that the mechanics are dominant, we hasten to assure the interested reader that the literary sensitivity of a Franklin T. Baker has played a part in the selection of the materials. Not a few of the materials carry the approving stamp of previous copyrights, which are duly acknowledged.

In working through these interesting little volumes, one gets the impression that they have passed the censorship of the classroom teacher who must daily do something for, to, or about some thirty to forty children. Perhaps this characteristic is the best part of the contribution, but one should not overlook the illustrations. Those of the first two volumes are particularly intriguing.

The interests of Nick and Dick are well sustained throughout the series. After following the boys through three volumes, one can hardly escape a certain curiosity concerning the dominance of the fortunes of these two young members of the sterner sex. Is this dominance, by chance, a subtle social backfire against feminine ascendancy?

The reviewer can only say that the stories are worthy and doubtless will catch and hold the interest of little girls as well as that of little boys. Should the authors suffer a deluge of criticisms from the neglected girls, let them write a trio of equal merit about Shirley and Sally.

CLYDE B. MOORE

CORNELL UNIVERSITY

Simple stories based on children's interests.—Children and teachers who have enjoyed the first Picture Scripts will be glad to know about five new books.[2]

[1] Arthur I. Gates, Franklin T. Baker, and Celeste Comegys Peardon, The Good-Companion Books: *Nick and Dick*, pp. vi+138, $0.56; *Fun with Nick and Dick*, pp. viii+168, $0.64; *The Story Book of Nick and Dick*, pp. x+246, $0.80. New York: Macmillan Co., 1936 and 1937.

[2] Picture Scripts. (*a*) *How To Make Marionettes for Fun at Home, Plays at Schools and Clubs, and Professional Performances* by Edith Flack Ackley, pp. 24; (*b*) *Matilda, the Old-fashioned Hen* by Elizabeth Matson, pp. 48; (*c*) *Airplanes: The Work They Do and How They Do It*, pp. 24; (*d*) *Along the Busy River* by Katharine Keelor; (*e*) *The Picnic* by James S. Tippett, pp. 48. New York: Grosset & Dunlap, Inc., 1936.

All are as attractively illustrated and printed as were the first, and all are as worth while in content.

Many children who are old enough, and some adults, like to make marionettes. One of the new Picture Scripts tells just how to do it. There are chapters on "What To Do with Marionettes," making marionettes, "Backgrounds and Stage Properties," "Arranging a Program," and "Suggestions for a Play." Everything is told in such simple language and with so many illustrations that any child who is old enough to make a marionette can read the directions for doing it.

The younger children will enjoy the lively, funny story of a setting hen, a proud rooster, and their twelve downy chicks, and, incidentally, they will learn how long it takes to hatch chicks, what an incubator is, and what great patience the mother hen possesses.

Boys, young and old, are constantly asking for books about airplanes. The new Picture Script on this subject is easy to read from Grade III on, and younger children will like to hear the story and study the pictures. Exactly the kind of authentic material that is needed is provided in the pictures and discussions of a cross-section of an airplane, boarding the plane, the cockpit, how the mechanics help, refueling the plane, etc.

Boats and bridges are equally as interesting as airplanes to present-day, motor-minded children. From kindergarten on these new stories in rhyme about the river, with its boats and bridges, will appeal to the love of rhythm as well as to the desire for information.

"Good things to eat! A place to run and play! Fun in the creek! A ride in a wagon and in the doctor's car! A picnic! We are going on a picnic." Lily Bell, who goes on the picnic, lives in the Land of Cotton. The youngest readers and listeners will be as excited as Lily Bell over the adventures of this lively little girl and her family which are told in a new Picture Script. At the same time they will see an interesting picture of one phase of life in the South.

ADA R. POLKINGHORNE

Mastering arithmetic.—Continuing effort to improve the learning of arithmetic is to be noted, not only in the number of experimental investigations which are constantly being reported, but also in the many textbooks in arithmetic which have appeared during the past few years. The modern arithmetic textbook reveals certain well-defined trends: (1) simplification and elimination of content; (2) change in grade placement of topics, the skills and the processes being moved upward in the grades rather than downward; (3) the spreading of topics, such as fractions, over several grades instead of massing them in one grade, a cyclical arrangement characterizing the treatment; (4) concrete problems, which are not only lifelike and adapted to the child's level but are also organized around units or centers of interest instead of being of an isolated sort; (5) the placing of emphasis on an understanding of number rather than on mere

number manipulation, graphic, pictorial, and other kinds of aids being utilized to effect a grasp of number relationships; (6) the encouraging of children to perform many varied activities in addition to the traditional task of calculating with paper and pencil; (7) the inclusion of scientifically constructed drills and reviews, often of a self-testing type; and (8) diagnostic and remedial features, as well as other evidences of recognition of individual differences in the capacity and the learning progress of pupils.

A set of books[1] has been published which appears to reflect in a commendable manner these trends in the construction of textbooks in arithmetic. The title of the set, "Master Key," refers to certain "keys" that a child needs in order to deal effectively with numbers, for example, (1) lists of abstract number relationships, such as the basic number facts in the four fundamental processes, which are thought to be indispensable to effective work in mathematics; (2) model concrete problems for which correct solutions are presented; and (3) certain rules or principles which have general application in forestalling difficulties that pupils might otherwise encounter.

Serious effort seems to have been exerted by the authors to facilitate the understanding and the learning of arithmetic. Drill is given only after attention has been devoted to understanding. Problems are ordinarily introduced on a child level before progress toward adult situations is attempted. New subject matter is introduced gradually and is retaught frequently. Difficult parts of processes are presented in later grades. The vocabulary for Grades III and IV has been checked with the Thorndike list. Long division precedes short division. Tables of squares are introduced before square root, the long method of square root being given only as honor work for the more capable pupils.

A comprehensive testing program has been provided. At intervals throughout the books appear "constant tests" in the four fundamental processes, standardized experimentally so that they are of equal value and may therefore serve as guides to the amount of improvement achieved by a pupil over a period of time. "Gateway tests" constitute a second type of measurement. These are cumulative in nature and are to be found at the end of each unit of work, the caption given to them apparently implying that proficiency in such a test insures that a pupil has passed through the "gate" from one unit to the next. In addition to these tests, there are diagnostic reviews, including test, study, and practice exercises arranged in increasing difficulty. At the end of each book is given a unique table or set of norms for the "constant tests," which is organized into Divisions A, B, C, and D. If a pupil's score falls in the "A" quadrant, he is accurate and fast; if in the "B" section, accurate but slow; if in the "C" quadrant, fast but inaccurate; and if in the "D" quadrant, both slow and inaccurate.

[1] Frank L. Clapp, assisted by Harriet Sleeper, Joy Mahachek, and Lillian Lamb Ralya, *The Master Key Arithmetic:* Grade III, pp. xii+242, $0.64; Grade IV, pp. x+260, $0.64; Grade V, pp. viii+246, $0.68; Grade VI, pp. viii+246, $0.68; Grade VII, pp. viii+278, $0.68; Grade VIII, pp. viii+278, $0.68. Boston: Houghton Mifflin Co., 1937.

Numbers from 1 to 100 appear in the table. These numbers, in the opinion of the reviewer, are likely to be confusing. The scores 50 and 51, for example, are numerically close together, and yet in the table a score of 50 means that fifteen problems are solved correctly in one minute of time, whereas 51 is interpreted to mean that sixteen problems are solved correctly in ten minutes of time. There is a vast difference represented by these abilities, which on the one hand is apparent in the fact that the scores lie in different quadrants, "C" and "B," but which on the other hand is not evident in the size of the two scores, 50 and 51.

These textbooks are published in both a three-book and a six-book edition. The work has been carefully edited, although an occasional error has been permitted to creep in. For example, in the six-book set pupils are at times referred to pages or captions for parts that appear only in the three-book edition. However, throughout the volumes there is constant evidence of the extreme thoroughness which has always characterized the work of the senior author. In the reviewer's opinion, this set of textbooks is a worthy addition to the large number of books which are at present available to the teacher of arithmetic.

HERBERT T. OLANDER

UNIVERSITY OF PITTSBURGH

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY AND PRACTICE

BENNETT, CHARLES ALPHEUS. *History of Manual and Industrial Education, 1870 to 1917.* Peoria, Illinois: Manual Arts Press, 1937. Pp. 566.

BENNETT, LUTHER JORDAN. *Secretarial Assistance in Teachers Colleges and Normal Schools.* Teachers College Contributions to Education, No. 724. New York: Teachers College, Columbia University, 1937. Pp. viii+86. $1.60.

COOK, LLOYD ALLEN. *Community Backgrounds of Education: A Textbook in Educational Sociology.* New York: McGraw-Hill Book Co., Inc., 1938. Pp. xii+398. $3.00.

CRAWFORD, CLAUDE C. *How To Teach: A Text for Upper Grade and Secondary Teachers.* Los Angeles, California: Southern California School Book Depository (3636 Beverly Boulevard), 1938. Pp. 512. $2.50.

CRAWFORD, CLAUDE C., THORPE, LOUIS P., and ADAMS, FAY. *The Problems of Education: A First Course for the Orientation of Prospective Teachers.* Los Angeles, California: Southern California School Book Depository (3636 Beverly Boulevard), 1938. Pp. 240. $2.50.

CYR, FRANK W., BURKE, ARVID J., and MORT, PAUL R. *Paying for Our Public Schools.* Scranton, Pennsylvania: International Textbook Co., 1938. Pp. x+198. $2.00.

Educational Yearbook of the International Institute of Teachers College, Columbia

University, 1937. Edited by I. L. Kandel. New York: Teachers College, Columbia University, 1937. Pp. xvi+584. $3.70.

GRAY, WILLIAM HENRY. *Psychology of Elementary School Subjects*. New York: Prentice-Hall, Inc., 1938. Pp. xii+460. $3.25.

HENDERSON, HELEN RUTH. *A Curriculum Study in a Mountain District*. Teachers College Contributions to Education, No. 732. New York: Teachers College, Columbia University, 1937. Pp. x+190. $1.85.

HOUSMAN, IDA E. *Pension Facts for Teachers: Based on the New Jersey Teachers' Retirement System*. New York: American Book Co., 1938. Pp. xviii+350. $1.50.

HOWARD, GLENN W. *A Measurement of the Achievement in Motor Skills of College Men in the Game Situation of Basketball*. Teachers College Contributions to Education, No. 733. New York: Teachers College, Columbia University, 1937. Pp. vi+110. $1.60.

KAWIN, ETHEL. *The Wise Choice of Toys*. Chicago: University of Chicago Press, 1938 (revised). Pp. x+154. $1.50.

LINDQUIST, E. F. *A First Coursl in Statistics: Their Use and Interpretation in Education and Psychology*, pp. xii+226, $2.25; *Study Manual for "A First Course in Statistics,"* pp. 120, $0.80. Boston: Houghton Mifflin Co., 1938.

MILLIGAN, NANCY GERTRUDE. *Relationship of the Professed Philosophy to the Suggested Educational Experiences: A Study in Current Elementary School Curriculum Making*. Teachers College Contributions to Education, No. 729. New York: Teachers College, Columbia University, 1937. Pp. vi+198. $2.10.

MOEHLMAN, ARTHUR B. *Social Interpretation: Principles and Practices of Community and Public-School Interpretation*. New York: D. Appleton–Century Co., Inc., 1938. Pp. xiv+486. $3.00.

PATERSON, DONALD G., SCHNEIDLER, GWENDOLEN G., and WILLIAMSON, EDMUND G. *Student Guidance Techniques*. A Handbook for Counselors in High Schools and Colleges. New York: McGraw-Hill Book Co., Inc., 1938. Pp. xviii+316. $3.00.

RIDDLE, JOHN INGLE. *The Six-Year Rural High School: A Comparative Study of Small and Large Units in Alabama*. Teachers College Contributions to Education, No. 737. New York: Teachers College, Columbia University, 1937. Pp. vi+102. $1.60.

RUSSELL, DAVID HARRIS. *Characteristics of Good and Poor Spellers: A Diagnostic Study*. Teachers College Contributions to Education, No. 727. New York: Teachers College, Columbia University, 1937. Pp. 104. $1.60.

RUSSELL, JAMES EARL. *Founding Teachers College: Reminiscences of the Dean Emeritus*. The Grace H. Dodge Lectures. New York: Teachers College, Columbia University, 1937. Pp. 106. $1.40.

SCHUTTE, T. H. *Teaching the Social Studies on the Secondary School Level*. New York: Prentice-Hall, Inc., 1938. Pp. xiv+583. $3.25.

VANCE, CATHERINE S. *The Girl Reserve Movement of the Young Women's Christian Association: An Analysis of the Educational Principles and Procedures Used throughout Its History.* Teachers College Contributions to Education, No. 730. New York: Teachers College, Columbia University, 1937. Pp. x+184. $1.85.

WEBER, SAMUEL E. *Cooperative Administration and Supervision of the Teaching Personnel.* New York: Thomas Nelson & Sons, 1937. Pp. 384.

WEST, JOE YOUNG. *A Technique for Appraising Certain Observable Behavior of Children in Science in Elementary Schools.* Teachers College Contributions to Education, No. 728. New York: Teachers College, Columbia University, 1937. Pp. viii+118. $1.60.

BOOKS PRIMARILY FOR ELEMENTARY-SCHOOL TEACHERS AND PUPILS

Books for Home Reading and for High Schools: Graded and Classified. Prepared for the National Council of Teachers of English by its Committee on Recreational Reading. Stella S. Center and Max J. Herzberg, Co-chairmen. Chicago: National Council of Teachers of English (211 West Sixty-eighth Street), 1937. Pp. 118. $0.20.

BOWMAN, EARL C., and BOSTON, PAUL F. *Living Safely.* New York: Macmillan Co., 1938. Pp. 178. $0.52.

BOYER, PHILIP A., CHEYNEY, W. WALKER, and WHITE, HOLMAN. *The Progress Arithmetics,* Book E, pp. 190, $0.48; *Teacher's Manual To Accompany "The Progress Arithmetics,"* pp. 24. New York: Macmillan Co., 1938.

BUSWELL, GUY T., BROWNELL, WILLIAM A., and JOHN, LENORE. *Daily-Life Arithmetics:* Book I, pp. x+574, $1.00; Teachers' Manual, pp. xii+212, $0.60. Boston: Ginn & Co., 1938.

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